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FROM THE BEQUEST OF
SUSAN GREENE DEXTER

BOAS ANNIVERSARY VOLUME

ANTHROPOLOGICAL PAPERS

WRITTEN IN HONOR OF

FRANZ BOAS

PROFESSOR OF ANTHROPOLOGY IN COLUMBIA UNIVERSITY

PRESENTED TO HIM ON THE TWENTY-FIFTH ANNIVERSARY
OF HIS DOCTORATE

NINTH OF AUGUST
Nineteen Hundred and Six

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Was hat der Mensch dem Menschen
Grösseres zu geben als Wahrheit?
SCHILLER

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PREFATORY.

ON Nov. 28, 1905, a circular was sent out to anthropologists of America and Europe, soliciting scientific contributions to be issued in honor of Professor Franz Boas on the twenty-fifth anniversary of his doctorate, Aug. 9, 1906. This call has met with a hearty, unanimous approval, to which the present volume bears witness.

The general sentiment of sympathy with this matter was well expressed by Mr. F. W. HODGE, editor of "The American Anthropologist," in a letter dated Dec. 15, 1905, as follows: "I am very glad of this proposed action, both because the great value of Dr. Boas's work, his energy in advancing the interests of anthropology, and his many personal qualities, are thus to be recognized, and because in this country we are rather prone, I fear, to forget that there is a sentimental side to scientific life."

Unfortunately Mr. Hodge was prevented from writing an article which he had planned for this occasion, owing to ill health.

There were many others who had expressed a desire to contribute, but who were thwarted in their good intents by expeditions or other circumstances. Miss ALICE C. FLETCHER of Washington was in the midst of an article on "Siouan Concepts of God," with which she was anxious to honor Professor Boas, when she was taken suddenly ill and had to abandon her plan, much to her regret.

Professor TH. FISCHER of Marburg, who undertook an exploring trip in February, 1906, wrote to the editor the following, under date Dec. 11, 1905:—

„Ich entnehme aus Ihrem freundlichen Schreiben mit dem grössten Vergnügen, dass der Plan besteht, das Doktorjubiläum von Franz Boas würdig zu begehen. Das interessirt mich im allerhöchsten Grade, da Franz Boas, wie Sie wohl auch wissen, ein Schüler von mir ge-

wesen ist. Er ist mit mir 1879 von Bonn nach Kiel übergesiedelt und hat dort mit einer meereskundlichen Dissertation promovirt. Dr. Boas' erste selbständige Arbeiten waren ja auch geographische, von denen er aber bald zur Ethnologie übergegangen ist, da auch ich ihn, der von der Physik zur Geographie gekommen war, auf die historisch-ethnographische Seite des Fachs hinweisen zu müssen glaubte. Schon seine Arbeit über den Cumberland-Sund zeugt davon. Mit den Eskimos haben seine epochemachenden Forschungen auf dem Gebiete der Ethnologie und Anthropologie überhaupt und Nord-Amerikas im besonderen begonnen.

„So gern ich nun dazu beitragen möchte, dass die Gabe, welche man dem trefflichen Manne zu dem Jubeltage darbieten will, auch von Deutschland aus möglichst bereichert werde, so muss ich meinerseits doch verzichten, dazu beizutragen; denn die wenige freie Zeit, welche mir die Amtstätigkeit lässt, brauche ich zur Vorbereitung auf eine Ende Februar anzutretende (5.) wissenschaftliche Reise nach Afrika.

„So kann ich dem Unternehmen nur den besten Erfolg wünschen und Ihnen herzlich danken, dass Sie, wie ich wohl annehmen darf, dasselbe ins Leben gerufen und mir davon Mitteilung gemacht haben."

Letters addressed to Professor Boas were received later from Geheimrat Professor Waldeyer of Berlin, and Professor O. T. Mason of Washington, as follows: —

Berlin,
15. Januar 1906.

Hochgeehrter Herr Kollege!

Gern würde ich mich an der Ihnen zu widmenden Festschrift beteiligt haben, fand jedoch, durch früher eingegangene Verpflichtungen gebunden, nicht die nötige Musse, um einen Beitrag zu liefern, der Ihrer würdig gewesen wäre. Seien Sie aber dessen gewiss, dass ich zu Ihren aufrichtigsten Verehrern gehöre und Ihre für die Anthropologie in allen ihren Zweigen so ausgezeichnete und wahrhaft förderliche Tätigkeit hoch bewerte und schätze. Dieser Empfindung zum Ausdrucke diene der herzliche Glückwunsch, den ich hiermit Ihnen zu Ihrem heutigen Gedächtnis- und Ehrentage sende. Möchten Ihnen noch viele nur reiche Erfolge auf dem Gebiete unserer Wissenschaft beschieden sein! — Bei Ihrer Frische und Arbeitskraft sehe ich im voraus diesen Wunsch sicher in Erfüllung gehen.

Ihr hochachtungsvoll ergebener

Waldeyer.

WASHINGTON, D.C.,
March 6, 1906.

DEAR DR. BOAS:

It is with especial pleasure that I send you words of good cheer and my blessing on your reaching the twenty-fifth anniversary of your University Doctorate, attained August 9th, 1881. By a happy coincidence, the present National Museum building had just been finished and anthropology received an immense impulse.

The first annual report of the Bureau of Ethnology also made its bow, and the Government Printing Office had just graduated the Introduction of Powell on Languages of the Indians, of Mallery on Sign Language, and of Yarrow on Mortuary Customs. You were yourself not long in enriching the publications of the same Bureau with your splendid monograph on the Central Eskimo. Your interest still continues, and may it long enrich the pages of its ethnological monographs.

I do not forget that you come still nearer to me in the volumes of the Smithsonian Institution and of the National Museum, treating of Houses and House-Life, of Social Organizations and Secret Societies, and of the mind of Primitive Man.

But I should miss a large part of the enjoyment in writing you this letter if I failed to emphasize in this connection the pleasure I myself have had in my studies of culture-history with you and through your published works.

I regret that the state of my health will prevent my being present at your festival and my making a more substantial contribution to the presentation volume that is to mark the twenty-fifth year of your Doctorate.

Yours ever sincerely,

O. T. Mason

Professor F. W. PUTNAM of the Peabody Museum of Archæology and Ethnology, Cambridge, Mass., sent the following message to the editor under date of April 16, 1906:—

As I am forbidden all forms of literary work, for the present, owing to my serious illness in September last, it has been impossible for me to prepare a paper for the Boas Festschrift.

I recall with pleasure my first meeting with Dr. Boas, in 1886, when he came to Buffalo to attend the meeting of the American Association for the Advancement of Science and introduced himself to me in connection with my position as Permanent Secretary of the Association. At my suggestion the Council of the Association extended to him the courtesy of making him Foreign Associate Member for the Buffalo Meeting. Soon after that Mr. Scudder secured him as assistant editor of "Science," and from that time he became one of us.

In 1891, when I was appointed Chief of the Department of Ethnology of the World's Columbian Exposition, Dr. Boas, at my urgent request, was appointed Chief Assistant of the Department. During that time of untold trials and difficulties in making the first general scientific anthropological exhibit in this country, I was supported by a large corps of loyal and efficient assistants; but to none did I owe so much as to Dr. Boas for the final success that attended our efforts. At the close of the Exposition, in 1893, Dr. Boas took charge of the collections made by our department, as Curator of the Department of Anthropology of the Field Columbian Museum in Chicago, which owes its existence primarily to our department of the Exposition.

In 1896, two years after I took charge of the Department of Anthropology of the American Museum of Natural History, I was again able to secure Dr. Boas's co-operation in the development of this department, giving to him the sections of Ethnology and Somatology. In this work, his extraordinary energy in planning and collecting soon made the exhibits from British Columbia and Alaska as well as those from the Eskimo, both east and west, of the first importance. The numerous parties sent out to study the languages and myths of our Indian tribes secured material which added to the unprecedented development of the ethnological collections.

It had been evident for many years that we must have a knowledge of the ethnology of the Asiatic side of the Northern Pacific in order to solve several important problems in connection with the study of the tribes on the western coast of America. The importance of such a comparative study of the ethnology of both sides of the North Pacific was brought to the attention of President Jesup, who always showed an interest in the Department and was ready to give his personal aid to its development. An elaborate plan, covering a number of years, was formulated, and Dr. Boas was put in special charge of the direction of the work, which was carried on under the generous patronage of Mr. Jesup. The results of this expedition, now being published under the able editorship of Dr. Boas, are so far-reaching and so important in all future investigations of the migrations of early peoples in America and Asia, that Dr. Boas's name will always be indelibly and most honorably associated with the great problems involved in the comparative ethnology of the two continents. I need not refer to the later ethnological work in China, which Dr. Boas has so largely intrusted to you to execute, except as another instance illustrating his persistence in working for a project on which he has embarked.

Dr. Boas's interest and influence in anthropology have always been wide, and have covered the field to a remarkable extent. His researches relating to the physical characters of the various American peoples were of importance early in his American studies, while his linguistic researches and his study of myths and ceremonials have made him our acknowledged leader in these branches of the science. His present positions in connection with the Jesup Expedition, the Bureau of Ethnology, and Columbia University, are giving him admirable opportunities to develop and make known the results of his studies.

It has always been a pleasure to me to have Dr. Boas associated with me in the many undertakings we have carried on for the advancement of Anthropology in America, and I feel that all workers in the several subjects covered by the term "ethnology," as we now use it, will agree that Dr. Boas's influence has been most helpful and beneficial to American students; while his energetic and critical mind has been of incalculable importance in every phase of anthropological investigation during the past two decades in America.

I beg of you, dear Dr. L., to accept this letter as a brief expression of my appreciation of the great worth of one with whom I have had so many and intimate associations, and to let it be communicated to him with the assurance of my most cordial good-will and sincere wishes for his continued health and prosperity, that he may engage in many more important works for the benefit of all students of anthropology and the advancement of its teachings among men.

I am, with regret that I must withhold myself from saying more,

Cordially yours,

F W Putnam

Following is a letter received from Professor W J McGee, Director of the St. Louis Public Museum: —

It is a pleasure to tender a word of appreciation of the eminent contributions made by Professor Franz Boas to American ethnology, and thereby to the general science of man.

The Western Hemisphere has made rich contributions to anthropology. Most of these emanated from North America, many of them chiefly from the United States. Albert Gallatin studied aboriginal tongues as a means of classifying the native tribes for both administrative and scientific purposes; John Wesley Powell extended Gallatin's lines, adding the use of primitive speech as an index to primitive thought as one of the ends of linguistic research; Lewis H. Morgan investigated aboriginal terms as a means of defining social organizations; Daniel G. Brinton applied linguistic research to the tracing of philosophies; and to this eminent group must be added Boas as the foremost investigator of American aboriginal tongues regarded as indices to the development of language itself. Others in numbers have contributed to knowledge of the development of mankind on the Western Hemisphere, and hence toward illumining one of the most significant, albeit obscure, of all the long chapters in the development of the human kind. Some have interpreted skeletons, others the artifacts of lowly culture; still others, including the galaxy of linguistic students, primitive activities observed among living tribes by the pioneers. Of all these activities, none are more characteristic of mankind, and none bear more directly on the course of human progress, than the development of that speech by which all other activities are co-ordinated and perpetuated; and it remained for Boas to open and occupy this special field, — the field of language, considered no less as an end than a means of research.

Boas, although the leading occupant of the special field of American linguistics, has done more: he has kept in touch with all other branches and aspects of the science of man; and thereby, to his own credit and to that of the institutions with which he is and has been connected, he takes rank as a general anthropologist, and one of the foremost of those now living.

The tribute so thoughtfully proposed by you and others to Professor Boas is well merited; and I am delighted to join in offering it.

Yours cordially,

WJ McGee

Dr. Livingston Farrand, professor of anthropology at Columbia University, expressed himself thus in the following letter, addressed to the editor: —

It is a very welcome opportunity you extend to me to join in the congratulations to Professor Boas on the twenty-fifth anniversary of his Doctorate.

The volume of studies contributed by his colleagues and pupils is a tribute to his influence as a working anthropologist. To me the most striking thought that arises is of Professor Boas's great service to what might be termed the academic side of anthropology in America.

It will be admitted, I think, by every one concerned with the teaching of anthropology in the United States, that the present position of the science as a department of university study is due more to his influence than to any other factor.

When Dr. Boas joined the Faculty of Columbia University, in 1895, a new stimulus was given to the initial efforts to gain recognition of the subject in the curriculum. His broad scholarship, his wide sympathies, and his uncompromising scientific ideals, at once produced their effect, and anthropology was soon placed on a new footing in the University.

It was not long before his work at Columbia, both by his example and through his students, began to show in other institutions. Departments already established were strengthened and broadened, the subject was introduced where it had been unknown before, and to-day, after a lapse of some ten years, the outlook is most promising for the general recognition of anthropology in the university world. I speak advisedly when I repeat that the present situation is due more to Professor Boas than to any other influence.

I am sorry that the necessary limits of a letter prevent my enlarging on this phase of Professor Boas's service; but I suppose I must content myself with giving my hearty approval to the plan of a commemorative volume, and with expressing the wish that his fiftieth anniversary will find him engaged with undiminished power and with all his well-known energy in anthropological research.

Very sincerely yours,

Livingston Farrand

The general plan of arrangement of the papers is, physical anthropology, philology, general anthropology and decorative art, American archæology and ethnology, European and Asiatic subjects. This scheme, however, could not be strictly adhered to because of the late arrival of some papers and of obstacles connected with the printing of others, which for this reason had to be transferred to the end. Grube's paper was made the leading article on account of the symbolical appropriateness of the congratulatory feature of the play which it contains. A bibliography of Professor Boas concludes the volume, which it is hoped will be welcomed by his numerous friends and co-workers. The figure on the back of the title-page represents a Sioux Indian, after a drawing made by Mr. Rudolf Cronau.

The publication of this book has been unduly delayed, owing to manifold typographical and other technical difficulties, much to the regret of the editor, who offers his apologies for its late appearance.

May the papers embodied in this volume be deemed not unworthy of the name of the man in whose honor they have been written; and may this garland of contributions, gathered from both sides of the Atlantic, bespeak again the harmonious collaboration of international science and the peaceful unity of the world in the realm of thought!

B. L.

CONTENTS.

PAGE

Wilhelm Grube, Die Huldigungsfeier der acht Genien für den Gott des langen Lebens. Ein chinesischer Schattenspieltext (Plate I) 1

Henry H. Donaldson, in collaboration with Elizabeth Hopkins Dunn and John B. Watson, A Comparison of the White Rat with Man in Respect to the Growth of the Entire Body (Plates II, III) 5

J. Kollmann, Die Bewertung einzelner Körperhöhen als rassenanatomische Merkmale (Figs. 1, 2) 27

Aleš Hrdlicka, Beauty among the American Indians (Plates IV–VI) 38

Jan Czekanowski, Zur Frage der Correlationen der Muskelvarietäten (Plates VII, VIII) 43

Maurice Fishberg, North African Jews 55

A. L. Kroeber, The Yokuts and the Yuki Languages 64

Roland B. Dixon, The Pronominal Dual in the Languages of California 80

Alfred M. Tozzer, Some Notes on the Maya Pronoun 85

William Jones, An Algonquin Syllabary 88

Alexander F. Chamberlain, Terms for the Body, its Parts, Organs, etc., in the Language of the Kootenay Indians of Southeastern British Columbia 94

George Hunt, The Rival Chiefs. A Kwakiutl Story 108

Pliny Earle Goddard, A Graphic Method of recording Songs (Plate IX and Figs. 3, 4) 137

Richard Andree, Scapulimantia (Figs. 5–7) 143

John R. Swanton, A Reconstruction of the Theory of Social Organization 166

W. H. Holmes, Decorative Art of the Aborigines of Northern America 179

Clark Wissler, A Psycho-Physical Element in Primitive Art . . 189

PAGE
CHARLES W. MEAD, The Six-Unit Design in Ancient Peruvian Cloth (Plates x, xi) 193
C. V. HARTMAN, Die Baumkalebasse im tropischen Amerika, ein Beitrag zur Ethnobotanik (Plates xii–xiv) 196
FRIEDRICH HIRTH, Chinese Metallic Mirrors, with Notes on Some Ancient Specimens of the Musée Guimet (Plates xv, xvi) . . 208
WALDEMAR JOCHELSON, Kumiss Festivals of the Yakut and the Decoration of Kumiss Vessels (Plates xvii–xxii and Fig. 8) . 257

AD. F. BANDELIER, La Danse des "Sicuri," des Indiens Aymará de la Bolivie (Plate xxiii) 272
KARL SAPPER, Spiele der Kekchi-Indianer 283
ZELIA NUTTALL, The Astronomical Methods of the Ancient Mexicans (Figs. 9–12) 290
EDUARD SELER, Eine Steinfigur aus der Sierra von Zacatlan (Plates xxiv, xxv) 299
FRANZ HEGER, Verschwundene altmexikanische Kostbarkeiten des xvi. Jahrhunderts, nach urkundlichen Nachrichten . . . 306
CARL LUMHOLTZ, The Meaning of the Head-Plume Tawia'kami used by the Huichol Indians (Plates xxvi, xxvii) 316
GEORGE H. PEPPER, Human Effigy Vases from Chaco Cañon, New Mexico (Plates xxviii, xxix, and Fig. 13) 320
GEORGE G. HEYE, Ceremonial Stone Chisel from Northwestern America (Plate xxx) 335
JAMES TEIT, Notes on the Tahltan Indians of British Columbia (Plates xxxi, xxxii, and Figs. 14–18) 337
GEORGE A. DORSEY, A Pawnee Ritual of Instruction 350
STANSBURY HAGAR, Cherokee Star-Lore 354
HARLAN I. SMITH, A Vast Neglected Field for Archæological Research 367

ERNST RICHARD, The Scandinavian Theory of Indo-European Origins 373
FRIEDRICH S. KRAUSS, Eine Vila mit sechs Flügeln. Ein Bosnisch Guslarenlied 387
WILLIAM WELLS NEWELL, Note on the Interpretation of European Song-Games 404
BERTHOLD LAUFER, The Bird-Chariot in China and Europe (Plate xxxiii and Figs. 19–30) 410
LEO STERNBERG, The Inau Cult of the Ainu (Plates xxxiv, xxxv) 425

PAGE

J. D. E. SCHMELTZ, Ein Beitrag zum Kapitel Arbeit und Rhythmus (Plate XXXVI) 438

JOHANNES RANKE, Zur Frage der Gehirnuntersuchung bei ärztlichen Sectionen (Figs. 31, 32) 443

O. ABRAHAM und E. M. v. HORNBOSTEL, Phonographirte Indianermelodieen aus British Columbia 447

CAPTAIN GEORGE COMER, Whaling in Hudson Bay, with Notes on Southampton Island 475

CAPTAIN JAMES S. MUTCH, Whaling in Ponds Bay (Plate XXXVII) 485

RUDOLF LEHMANN, Poetik als Psychologie der Dichtkunst . . . 501

H. A. ANDREWS, Bibliography of Franz Boas 515

INDEX 547

LIST OF ILLUSTRATIONS.

PLATES.

OPP. PAGE

I. Chinesischer Schattenspieltext 4

II. Chart showing the Increase in the Body-Weight of Man and the Rat with Age 26

III. Chart representing the First Seventy Days as shown on Plate II, enlarged to four times the Scale of that Chart 26

IV. Young Full-Blood Apache Woman, White Mountain, Arizona; Annie, Full-Blood Laguna Girl 42

V. Full-Blood Laguna Girl 42

VI. A Full-Blood Papago Infant; Young Full-Blood Apache Woman, White Mountain, Arizona; Young Full-Blood Walapai Woman 42

VII. Frequenz der Muskelvarietäten 54

VIII. Correlationscoefficienten 54

IX. Chart showing Method of recording Folk-Songs . . . 142

X. Ancient Peruvian Textiles 194

XI. Ancient Peruvian Textile 195

XII. Kalebassenbaum, Izalco, Salvador 196

XIII. Geräte, etc., von Baumkalebasse aus Izalco, Salvador . 199

XIV. Kalebassenschalen, Izalco, Salvador 203

XV. Chinese Metallic Mirrors, Musée Guimet, Paris . . . 241

XVI. Chinese Metallic Mirrors, Musée Guimet, Paris . . . 248

XVII. Kumiss Festival of the Yakut 257

XVIII. Kumiss Churn, Stick, and Ladles of the Yakut . . . 261

XIX. Mouthpieces and Stool for Kumiss Churn of the Yakut 262

XX. Yakut Girl in Festive Attire 264

XXI. Kumiss Goblets of the Yakut 266

XXII. Kumiss Drinking-Vessels and Bucket of the Yakut . . 266

XXIII. La Danse des "Sicuri" 272

XXIV. Sculptur von Mapilca (nach Aquarell von Carlos Nebel) 299

XXV. Steinsculpturen, Mexico 301

XXVI. Tawia'kami of the Huichol, Mexico 316

OPP. PAGE
XXVII. Styles of Head-Dress among the Huichol, Mexico . . 319
XXVIII. Head and Torso of Effigy Vases from Pueblo Bonito, New Mexico 322
XXIX. Human Effigy Jar from Chaco Cañon, New Mexico . 328
XXX. Ceremonial Chisel from Northwest America 335
XXXI. Tahltan Lodge for drying and smoking Salmon, Salmon Creek, near Shesley River, Cassiar, B.C. . . 341
XXXII. Tahltan Fish-Dam and Salmon-Traps on Salmon Creek, near Upper Shesley River, Cassiar, B.C. . . 344
XXXIII. Bronze Bird-Chariot, China 410
XXXIV. Inau of the Ainu, Saghalin 427
XXXV. Inau of the Ainu, Saghalin 428
XXXVI. Indonesische Säestöcke und Kettenbäume mit Lärmvorrichtung 438
XXXVII. Eskimo of Ponds Bay 488

TEXT FIGURES.

PAGE
1. Schema der continuirlichen Entwicklung der Körperhöhe . 33
2. Schema der unterbrochenen Entwicklung der Körperhöhe . 33
3. Kymograph for Phonetic Work 137
4. Vowel-Recorder 139
5. Schulterblattorakel der Kalmüken (nach Pallas) 148
6. Schulterblattorakel der Kirgisen (nach Potanin) 149
7. Schulterblattorakel der Sindhi (nach Burton) 152
8. Yakut Designs 269
9–12. Designs from Mexican Codices . . . 290, 292, 294, 296
13. Fragments of Effigy Jars from the Chaco Cañon, New Mexico 331
14. Wooden Salmon-Spear used by Tahltan on Creeks . . . 344
15. Outline of Fish-Dam of Tahltan 344
16. Outline of Fish-Trap of Tahltan 345
17. Bark Canoe, Canadian Yukon Type 345
18. Picture-Writing of the Tahltan 347
19–29. Engravings from Chinese Books 412, 414–420
30. Bird-Chariot (after Virchow) 422
31. Abgerollte Oberfläche eines menschlichen Gehirns, Rechte Hemisphäre 445
32. Abgerollte Oberfläche eines menschlichen Gehirns, Linke Hemisphäre 445

DIE HULDIGUNGSFEIER DER ACHT GENIEN FÜR DEN GOTT DES LANGEN LEBENS.

EIN CHINESISCHER SCHATTENSPIELTEXT

ÜBERSETZT VON WILHELM GRUBE.

ES ist in China ein weit verbreiteter Brauch, bei festlichen Anlässen, wie z.B. Geburtstagen, Jubiläen, Hochzeiten u.dgl.m., die darzubringenden Glückwünsche in kurze dramatische Scenen symbolisch-allegorischen Inhalts einzukleiden. Die hier mitgeteilte Probe dieser Gattung von Festspielen ist einer von Dr. Berthold Laufer in China erworbenen, sehr reichhaltigen Sammlung von chinesischen Schattenspieltexten entnommen, die mir gegenwärtig zur Bearbeitung vorliegt. Der Text besteht, wie das gewöhnlich der Fall ist, zum grössten Teil aus gereimten Versen, die teils gesungen, teils gesprochen werden. Bei dem ohnehin recht dürftigen poetischen Gehalt des Stückes glaubte ich mich jedoch mit einer Wiedergabe in prosaischer Form begnügen zu dürfen.

Die handelnden Personen sind, wie schon aus dem Titel ersichtlich, die acht Genien. Sie werden als die Spender aller guten Gaben verehrt, unter denen bekanntlich langes Leben, Reichtum und männliche Nachkommenschaft obenan stehen. Im vorliegenden Falle handelt es sich um eine Geburtstagshuldigung, welche die acht Genien ihrem Oberhaupte, dem Gott des Südpols, Nan-chi, der zugleich der Gott des langen Lebens ist, darbringen. Ort der Handlung ist die Insel der Glückseligen P'eng-lai.

Ich lasse nunmehr die Übersetzung des Stückes folgen, der ich den Originaltext beifüge (s. Plate 1).

Han Chung-li. Wir Genien sind sorgenfrei und ohne Kummer, rosiger Sonnenschein und eine reine Brise erfüllt den Palast der Hsi-wang-mu.[1] Fest steht das blaue Firmament:

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[1] *Yü-lou,* der Nephritturm, ist der Name für den Palast der Beherrscherin des Paradieses, Hsi-wang-mu.

es ist der Pfad, auf dem die Genien wandeln, und Morgen für Morgen fahren wir auf den fünffarbigen Wolken daher. Ich bin Han Chung-li.

Lü Tung-pin. Ich bin Lü Tung-pin.

Chang Kuo-lao. Ich bin Chang Kuo-lao.

Ts‘ao Kuo-chiu. Ich bin Ts‘ao Kuo-chiu.

Li T‘ieh-kuai. Ich bin Li T‘ieh-kuai.

Lan Ts‘ai-huo. Ich bin Lan Ts‘ai-huo.

Ho Hsien-ku. Ich bin Ho Hsien-ku.

Han Hsiang-tszĕ. Ich bin Han Hsiang-tszĕ. Willkommen, ihr Genien allzumal!

Alle. Willkommen!

Einer von den Genien. Da wir nunmehr vollzählig beisammen sind, so sollten wir uns über die Gaben, die jeder vorbereitet hat, einigen.

Die Übrigen. Recht so!

Han Chung-li (singt). Unser Göttergefährt hat sich auf dem Gipfel des P‘eng-lai Berges niedergelassen; so wollen wir uns denn über die Huldigungsgeschenke beraten.

Chang Kuo-lao. Ich spende etliche Brustbeeren des An-ch‘i;[1] sie sind von der Art, die in Fu-sang gedeiht.

Han Chung-li. Ich spende etliche Pillen von der Arznei, die langes Leben verleiht: der Genien heilige Arznei besteht aus Schnee und Reif.

Ts‘ao Kuo-chiu. Ich spende etliche Schüsseln mit Reif bedeckter Orangen.[2]

Lü Tung-pin. Ich spende drei Teller Feen-Ingwer.[3]

Li T‘ieh-kuai. Ich spende etliche Schüsseln tausendjähriger Lotuswurzeln.[4]

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[1] Die Brustbeeren (*Zizyphus vulgaris*) des An-ch‘i, eines Unsterblichen auf der Insel P‘eng-lai, hatten die Grösse von Kürbissen (vergl. *Shi-chi*, XXVIII, p. 21 b).

[2] Für *shuang* („Paar") ist jedenfalls *shuang* („Reif") zu lesen; *shuang-cheng*, mit Reif bedeckte Orangen, ist ein in der Poesie mehrfach vorkommender Ausdruck (vergl. *P‘ei wên yün fu*, s. v.).

[3] Über den Feen-Ingwer, *yün-ying-chiang*, vermag ich keine Auskunft zu geben.

[4] Nach dem *Shih i chi* brachte Hsi-wang-mu dem Mu-wang zehntausend Jahre alte Eis-Pfirsiche (*ping-t‘ao*) und tausendjährige grüne Lotuswurzeln dar (vergl. *P‘ei wên yün fu*, s. v.).

sind in dieses Land des Segens, möge Glück und Heil herniederkommen: mögen allen Familien an dieser Stätte edle Söhne geboren werden, möge Alt und Jung in allen Häusern sich friedlichen Wohlergehens erfreuen, möge Segen die Häuser füllen, Glück und Reichtum zunehmen, mögen die fünf Getreidearten in reicher Fülle in kostbare Speicher gesammelt werden; denn da wir Mann für Mann in diese Menschenwelt gekommen, geziemt sich's wohl, ein wenig Glück und lange Lebensdauer zu verleihen!—Die Schar der Genien hat segenspendend ihre Huldigungen dargebracht, und während jeder nun in seine Grotte heimkehrt, steigt glückverheissendes Licht empor.—(*Spricht*) Fürwahr, wie aus den neun Himmeln der Götterwagen herabfährt, so entsteht nach neunmaliger Umdrehung das Elixir des langen Lebens;[1] und sieben Tagen in unserer Grotte entsprechen tausend Jahre in der Menschenwelt.

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[1] S. hierüber meine Abhandlung: Ein taoistischer Schöpfungsmythus (in der Festschrift für Ad. Bastian).

A COMPARISON OF THE WHITE RAT WITH MAN IN RESPECT TO THE GROWTH OF THE ENTIRE BODY.

BY HENRY H. DONALDSON

In collaboration with ELIZABETH HOPKINS DUNN and JOHN B. WATSON.[1]

IN order to give greater value to a further study of the growth of the nervous system of the rat, it was thought necessary to establish the general growth-relationships between the two forms mentioned in the title. We propose, therefore, in this paper, to compare in the white rat and man the manner in which the body gains weight between conception and maturity.

The white rat used for this study is distinctly smaller and more lightly built than the brown rat (*Mus decumanus*), and hence all the measurements assigned to it are somewhat less than those of the brown species with which we are familiar. It is commonly stated that the white rats kept as pets are albinos of the black rat (*Mus rattus*). This statement is certainly not true for the colony on which our observations have been made. At the moment more cannot be said; but investigations now in progress for the purpose of establishing the zoölogical relationships of the white rat probably will enable us at an early date to make additional detailed statements concerning our own colony.

In carrying out a comparison between forms so dissimilar in absolute size as the rat and man, it is of course impracticable to employ the same scale in the charts intended to exhibit the relations. Under these circumstances, two adjustments have been made in the method of recording, so as to render the results more directly comparable.

In the first place, the base-line, on which are plotted all the curves for change according to age, is of the *same* length for both forms. This means that we make the period representing the span of life in the rat extend on the chart over as long a distance as the corresponding span in man. The first difficulty met in attempting to do this accurately lies in our incomplete information concerning the onset of old age and the natural length of life in the case of the rat. From the best data which we can obtain, we have, however, concluded that the three-year-old white rat is very old, and is justly comparable to a man of ninety years. For the present purpose, therefore, we call the span of life in the white rat three years, and compare this with ninety years of human life. It is assumed that the same proportional relations can be used for fractions of the entire span of life. In this study our interest lies for the most part in the first year of rat life, corresponding, in accordance with the above relation, to the first thirty years of human life.

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[1] From the Neurological Laboratories of the University of Chicago and of The Wistar Institute of Anatomy, Philadelphia.

In the second place, the reduction of the values of the ordinates, so as to bring the two curves together at their termini, is a simple matter of adjustment, the details of which will be given in their proper place.

DATA ON THE WHITE RAT.

The material on which we depend for the body-weight of the white rat at different ages has been obtained from records made by Dr. DUNN and Dr. WATSON, and from several other series preserved in the archives of the laboratory (see Tables I and II).

Dr. Dunn's observations touch the first fourteen days of life, and need a word of introduction and explanation.

DR. DUNN'S SERIES.—After birth the young white rat depends upon the mother for sustenance for about twenty days. Previous experiments had shown that during this period of dependence, especially during the first half of it, removing the young rats from the mother to weigh them resulted in checking their growth. The causes of this retardation are not far to seek, but they need not be detailed now.

We decided, therefore, to obtain the weight of the rats during the first fourteen days of life by weighing different litters as they attained different ages, and thus weighing each litter only once. Since individuals taken from different litters often exhibit much greater differences in weight than is usually shown by the extremes of a single litter, it follows that by this method the extreme values at any age are somewhat greater than they would be, could the same litter have been followed through successive stages.

The make-up of a litter is always unpredictable, and ranges from those consisting entirely of representatives of one sex to those evenly divided between the two. However, in Dr. Dunn's work, no litter was weighed which did not have at least four individuals in it, and none with less than two of the same sex. Where the representatives of one sex were more numerous than those of the other, the number of the former was reduced by excluding the lightest *and* heaviest representatives, until it equalled the number of the other sex, or differed from that number only by one. Thus throughout there was approximately an equal representation of the two sexes in each litter, — a point of importance when determining the relative growth of the sexes during the first fourteen days. In calculating the body-weights at birth, and at one and two days, there have been added to Dr. Dunn's records those in the laboratory archives. This addition is explained in detail in the note to Table VII.

DR. WATSON'S SERIES. — Beginning with the fifteenth day, the records in the tables (I and II) up to a hundred and eighty-five days for the males, and a hundred and ninety-two days for the females, were obtained from animals carefully reared by Dr. Watson. He began his work with ten litters, nine of which were born in May, and one in June, 1903. From these ten litters there were chosen nineteen males and seventeen females, the effort being made to obtain two of each sex from each litter. The animals to be used were selected when the litters were fifteen days old, and the first weighing was made at that time. At twenty days the chosen animals were weaned; and at about sixty days (i.e., just before the period when sexual maturity is reached) the two sexes were separated, and neither group was allowed to breed. The conditions surrounding these animals during this period of observation were such as have been found favorable for growth. The food was varied and abundant, but not excessive in amount. The care of the animals was very similar to that described by Dr. WATSON in his article on "The Effect of the Bearing of Young," etc. (1905).

The weighings were made just before feeding. The first record of the weight of the rats was made at fifteen days, and individual records were kept throughout the experiment. From the fifteenth to the thirty-first day the rats were weighed every second day; from the thirty-first to the ninety-second day, every third day; and from the ninety-second day to the hundred and twenty-fourth, every fifth day. From this last age to the end of the experiment they were weighed every seventh day. The rats became quite tame, and towards the end of the experiment would sometimes climb into the scale-pan of their own accord.

These observations, however, were not carried on without disturbance caused by the illness of some of the rats. Suffice it to say on this point, that when the rat, by its behavior, was found to be ill, and to be either falling behind in its rate of growth or actually losing weight, it was excluded from the record. The preceding portion of the record, which fell within the limits of those for the other normal rats, was, however, retained. It thus happened that at the end of the period of observation there were only fifteen males and eleven females which were considered in a normal, healthy condition.

As stated above, neither the males nor the females in Dr. Watson's series were mated. The effect of mating on the growth-curve for the males can probably be neglected, but in the case of the females it is an important circumstance.

Since, as a rule, laboratory animals of this sort are not isolated, it seemed most probable that other investigators would wish to compare the weights of the females which had been mated with the records which we have to present. To meet this possibility a second series of *calculated* weights, based on Dr. Watson's investigation on the effect of the bearing of young, is introduced, showing for those females allowed to bear young the estimated body-weight at different ages after the beginning of the first pregnancy. This is always greater than the body-weight of the unmated females of like age. In this connection it is desirable to emphasize the fact that under ordinary circumstances the true body-weight of breeding females is difficult to determine. The weights of bearing females should be taken, as Dr. Watson has shown, only between the periods of pregnancy and after the rat has actually recovered from the prolonged strain of nursing the young; and the attention of those who have occasion to record body-weights of females is called to this point.

What we endeavor to show in the second series of numbers in Table II is the body-weight as modified by the bearing of young after the immediate disturbances due to the rearing of the litter have disappeared. In looking over Dr. Watson's records, as given in the paper cited above, it is seen that this cycle of disturbance, from the beginning of pregnancy to the end of the recovery from lactation, comprises from eighty to ninety days. We have assumed, then, that from impregnation to complete recovery would occupy a period of at least eighty days; and we have also assumed that the effects of the bearing of the young, so far as they influence the body-weight of the female, can be here represented as though they were steadily progressive.

In Dr. Watson's experiments on the effects of the bearing of young, the gain in weight extending through an average period of two hundred and forty days, and comprising the final recovery from the last of three litters, was found to be approximately .03 of 1 per cent. (0.03 per cent.) of the initial weight per diem; that is, mated animals increased in body-weight this much more rapidly than those which remained unmated.

Beginning in the present instance with the ninety-second day, at which time the effect of the first litter might be exhibited by a noticeable increase in the weight of the mother, conception having occurred ten days earlier, we have calculated and added the excessive growth of the mated females between the ninety-second day and the hundred and ninety-second day, the time at which this series closes. In doing this, the " initial weight " taken as the basis for the calculations was that at eighty-eight days (average, 136.0 grams: lowest, 115.6 grams; highest, 157.4 grams). The weights thus calculated for the breeding females are those used for the construction of the curve in Plates II and III.

After the hundred and ninety-second day, we have observations which have been collected in the laboratory at different times. They furnish seven cases at about three hundred and sixty-five days, or one year, all of these animals having been allowed to breed under the ordinary laboratory conditions.

In the case of the males, in Dr. Watson's series, no special remarks are called for. His records run only to the hundred and eighty-fifth day, and are continued by laboratory records which fall into four groups:—

10 individuals about 216 days old.
10 individuals about 256 days old.
6 individuals about 365 days old, or 1 year.
6 individuals about 730 days old, or 2 years.

We are thus able to get information concerning the change in body-weight of the female up to one year, and of the male up to two years.

In order to complete the growth-record in the rat, we need to know the changes in weight from the date of conception to that of birth. Unfortunately, it was not until the last moment that the need of this record was appreciated. The data will be gathered, but this will require some time; and for the present we shall use a curve the values of which have been calculated. The basis for this calculation is found in the records of FEHLING (1877), on the growth of the fœtus in the rabbit. The gestation period of the rabbit is from thirty to thirty-one days. This time is divided, in his table, into ten equal periods; and the weights, starting with the beginning of the fifth, are entered for each period. It is assumed by us that the nearly related rat, the young of which are as immature as those of the rabbit, and the gestation period of which is twenty-one days, grows in the same manner as does the rabbit (see Table III).

Under these circumstances, the change in weight of the rat can be approximately estimated; and the part of the curve which represents the increase in body-weight before birth, and comprises the first two phases of the growth-curve, which are discussed further on, can in this way be provisionally represented.

The method of presenting the results on the body-growth of the rat which are entered in Tables I and II was carefully considered. Each age-group might have been examined statistically, and weight variants determined for it; but it was thought that the value of such results would be hardly enough greater than that given by printing the extreme weights for each age and group to warrant the additional labor and tables. The limiting individual records tend to be aberrant, and hence make a less favorable showing than could be obtained from a more elaborate treatment of the data; but this will hardly mislead any one who wishes to utilize these results. The entire series of individual records is preserved in the archives of The Wistar Institute of Anatomy, and is open to inspection there. All of the data for the rat are given in Tables I and II, and with these it will be necessary to compare the corresponding observations which apply to man.

TABLE I. DATA ON WHITE MALE RATS (UNMATED), SHOWING INCREASE IN WEIGHT OF BODY WITH AGE.

AGE IN DAYS (Gestation 21 Days).	BODY-WEIGHT IN GRAMS.			NUMBER OF ANIMALS.
	Average.	*Lowest.*	*Highest.*	
Birth	5.4	4.3	6.5	40
1	5.6	4.6	6.7	26
2	5.8	5.2	6.3	10
3	6.3	5.6	6.7	8
4	6.9	6.5	7.9	10
5	8.3	7.1	9.6	9
6	9.1	6.7	12.7	11
7	9.2	7.3	12.7	11
8	10.4	7.2	13.1	14
9	11.3	9.1	13.7	10
10	12.2	10.8	13.5	6
11	13.3	13.0	13.6	4
12	14.8	11.4	19.5	6
13	15.3	14.1	16.0	5
14	15.2	14.0	17.6	6
15	16.5	12.5	22.4	19
17	17.8	13.9	24.0	19
19	19.5	15.2	26.0	19
21	21.2	14.6	30.1	19
23	22.9	17.9	32.5	19
25	25.3	19.0	35.8	19

TABLE I. DATA ON WHITE MALE RATS (UNMATED), SHOWING INCREASE IN WEIGHT OF BODY WITH AGE. *Continued.*

AGE IN DAYS.	BODY-WEIGHT IN GRAMS.			NUMBER OF ANIMALS.
	Average.	*Lowest.*	*Highest.*	
27	27.4	19.8	38.3	19
29	29.5	22.1	39.3	19
31	31.8	25.9	41.2	19
34	34.9	27.4	43.3	19
37	37.8	28.5	48.0	19
40	42.2	30.8	52.2	19
43	46.3	33.7	62.4	19
46	50.5	35.9	66.2	19
49	56.7	38.9	73.9	19
52	62.5	39.8	82.5	19
55	68.5	40.6	87.5	19
58	73.9	45.1	100.1	19
61	81.7	49.0	116.6	19
64	89.1	52.7	129.6	19
67	99.3	57.7	140.2	19
70	106.6	71.2	148.5	19
73	113.8	71.4	152.4	19
76	121.3	89.8	157.5	19
79	128.2	97.0	161.2	19
82	135.0	105.1	165.5	19
85	143.8	117.0	168.5	19
88	148.4	124.5	174.0	19
92	152.3	124.0	179.6	19
97	160.0	124.0	180.7	19
102	168.8	120.0	192.2	19
107	177.6	120.0	206.0	19
112	183.8	125.0	215.6	19
117	191.4	130.0	223.0	19
124	197.3	123.0	238.2	19
131	202.5	132.4	249.2	19
138	209.7	145.6	248.4	19
143	218.3	155.5	259.4	19
150	225.4	162.4	268.2	19
157	227.0	162.4	271.4	19
164	231.4	159.0	271.8	17
171	235.8	165.2	289.0	17
178	239.4	167.9	291.2	17
185	239.8	176.0	294.0	15
216	252.9	190.5	294.5	10
256	265.4	190.5	310.0	10
365	279.0	203.6	320.0	6
730	308.5	285.0	375.6	6

TABLE II. DATA ON WHITE FEMALE RATS (UNMATED AND MATED),[1] SHOWING INCREASE IN WEIGHT OF BODY WITH AGE.

AGE IN DAYS (Gestation 21 Days).	BODY-WEIGHT IN GRAMS.						NUMBER OF ANIMALS.
	Average.		*Lowest.*		*Highest.*		
Birth	5.2		4.2		6.2		17
1	5.5		4.5		6.1		11
2	5.7		4.8		6.3		7
3	6.2		5.6		6.5		9
4	6.5		5.6		7.0		10
5	7.7		7.0		9.0		9
6	8.5		7.1		11.0		11
7	8.7		7.5		11.8		8
8	10.6		7.1		13.1		13
9	11.1		9.4		12.6		9
10	12.1		9.1		14.4		6
11	12.8		12.1		13.6		2
12	15.1		13.6		17.7		5
13	15.1		14.7		16.0		5
14	15.6		13.5		18.1		5
15	17.7		13.1		23.2		17
17	19.2		15.1		24.5		17
19	20.6		16.9		27.0		17
21	22.6		16.1		30.1		17
23	24.9		17.3		33.3		17
25	27.4		20.8		36.0		17
27	30.0		23.9		38.5		17
29	31.4		24.0		39.0		17
31	32.9		26.3		42.8		17
34	35.7		26.4		44.1		17
37	39.5		29.8		47.4		17
40	43.7		30.6		52.4		17
43	47.9		35.0		60.7		17
46	52.0		41.4		63.0		16
49	57.7		42.0		69.2		16
52	62.9		41.7		74.8		16
55	68.4		49.8		80.7		13
58	74.6		53.6		86.6		13
61	78.4		56.2		96.7		13
64	85.8		57.5		106.8		12
67	96.0		71.2		114.1		12
70	99.8		79.0		122.6		11
73	105.6		80.2		126.5		11
76	110.4		89.6		131.6		11
79	118.8		97.7		136.0		11
		Mated.		*Mated.*		*Mated.*	
82	124.7	—	101.0	—	139.2	—	11
85	131.5	—	105.0	—	143.2	—	11
88	136.0	—	115.6	—	157.4	—	11
92	139.6	139.8	118.7	118.9	161.4	161.6	11
97	145.9	146.3	119.6	120.0	174.5	175.0	11
102	152.4	153.1	124.6	125.2	185.7	186.5	11
107	154.9	155.8	129.6	130.3	191.4	192.5	11
112	160.2	161.4	138.5	139.5	193.6	195.0	11
117	166.5	168.0	142.5	143.8	199.0	200.8	11
124	170.7	172.6	146.4	148.0	206.7	209.0	11
131	178.6	181.0	151.2	153.0	214.7	217.5	11
138	182.2	185.0	151.0	153.3	210.2	213.4	11

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[1] Under "Mated" are given the *estimated* body-weights for rats allowed to breed.

TABLE II. Data on White Female Rats (Unmated and Mated), showing Increase in Weight of Body with Age. — *Continued.*

Age in Days.	Body-Weight in Grams.						Number of Animals.
	Average.		*Lowest.*		*Highest.*		
		Mated.		*Mated.*		*Mated.*	
143	183.4	186.6	154.0	156.7	219.4	223.4	11
150	184.6	188.2	153.7	156.7	220.7	225.0	11
157	184.0	188.0	154.9	158.2	217.6	222.4	11
164	185.1	189.5	154.0	157.6	215.0	220.1	11
171	187.4	192.2	154.0	158.0	210.0	215.4	11
178	191.7	197.0	153.0	157.2	215.0	221.0	11
185	194.2	200.0	152.0	156.6	215.0	221.4	11
192	195.9	202.2	155.0	160.0	217.0	224.0	11
365		226.4		171.4		280.0	7

TABLE III. Calculated Growth of a Rat in Weight before Birth, based on the Observations of Fehling on the Rabbit Fœtus (Sexes not distinguished).

Rabbit.				Rat.	
Observed Growth of Fœtus.				Calculated Growth of Fœtus.	
Age in Days.	*Period.*	*Weight of Fœtus in Grams.*	*Ratio.*	*Age in Days.*	*Weight of Fœtus in Grams.*
12	5	.619	1	9	.087
15	6	6.167	10	11	.870
18	7	11.734	20	13	1.750
21	8	18.650	30	15	2.610
24	9	28.908	47	17	4.100
27	10	33.670	54	19	4.700
30–31	Term.	38.350	62	21	5.400

Data on Man.

The figures for man have been taken for the most part from Roberts's tables (1878). These are reproduced in Table IV; the weights, originally given in pounds avoirdupois, being changed to kilos, 2.2 pounds being taken as equal to 1 kilo. Unfortunately, the records for the male are incomplete at one year and at two years, no record being made in the first instance, and in the second that given being an average of only two observations. It is therefore necessary to supplement the curve at this point. The emendations which have been made are entered in parentheses at the right of Roberts's observations, and are based on figures published by CAMERER (1893). As will be seen, this emendation, based on three individuals weighed at two periods, makes the weight at one year 9.9 kilos, and at two years 12.8 kilos. The form of the curve given by these numbers corresponds very closely with that based on the record for the female (Roberts), and also with that obtained by Dr. MISHIMA (1904), in his careful study of Japanese children of both sexes during the first fifteen years of life.

It should, however, be further stated that in Roberts's records, the children at birth were weighed without clothing, while the records for all the other ages give a weight in which indoor clothing is included. This, of course, modifies the form of the curve between birth and the end of the first year; but after that point its influence on the shape of the curve can for our purpose

TABLE IV. DATA ON MAN (MALES AND FEMALES), SHOWING INCREASE IN WEIGHT OF BODY WITH AGE.[1]

AGE IN YEARS (Gestation 285 Days).	BODY-WEIGHT IN KILOS.			
	No. of Cases.	*Males.*	*Females.*	*No. of Cases.*
Birth	451	3.2	3.1	466
1	— (3)	— (9.9)	9.1	8
2	2 (3)	14.5 (12.8)	11.5	9
3	41	15.4	14.4	30
4	102	16.9	16.4	97
5	193	18.1	17.8	160
6	224	20.1	19.0	178
7	246	22.6	21.6	148
8	820	24.9	23.7	330
9	1425	27.4	25.3	535
10	1464	30.6	28.2	495
11	1599	32.6	31.0	456
12	1786	34.9	34.7	419
13	2443	37.6	39.7	209
14	2952	41.7	44.0	229
15	3118	46.6	48.3	187
16	2235	53.9	51.4	128
17	2496	59.3	52.5	74
18	2150	62.2	55.1	64
19	1438	63.4	56.4	97
20	851	64.9	56.1	128
21	738	65.7	55.5	59
22	542	67.0	56.1	53
23	551	67.0	56.4	29

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[1] From Roberts's tables (1878), except males at one and two years, the data for which are interpolated in parentheses from Camerer's records, weight without clothing. So far as Roberts's records are concerned, the weight, except that at birth, includes the weight of indoor clothing.

be neglected. In the data taken from Camerer for the first and second year of the males, the weights are without clothing, and hence at those periods the weight of the male unclothed is compared with that of the female clothed. The amount to be added to the male, in order to adjust the difference, is probably from 6.5 per cent. to 7.2 per cent. of the true body-weight (see BOWDITCH [1877]), or .65 to .72 kilos at one year,-and .83 to .92 kilos at two years. In the absence of exact data, we have not attempted any modifications of the figures as given by Camerer and reprinted in Table IV, but have entered on the chart the values without correction for clothing.

It is also important to enter for man, as has been done for the rat, the curve of growth from conception to birth. For this purpose, we have used the data furnished by FEHLING (Table V).

TABLE V. DATA ON MAN, SHOWING GROWTH OF HUMAN FŒTUS AT THE BEGINNING OF THE PERIODS INDICATED (SEXES NOT DISTINGUISHED).

Age in Lunar Months.	*Weight in Grams.*
Second month	1
Third month	7
Fourth month	20
Fifth month	120
Sixth month	285
Seventh month	635
Eighth month	1220
Ninth month	1700
Tenth month	2240
Term	3250

The portion of the curve for man in Plates II and III, between conception and birth, is based on the figures in the foregoing table.

CONSTRUCTION OF CHART IN PLATE II.

As previously mentioned, the base-line on which the ordinates for these growth-curves are erected has been so adjusted that one year of rat life equals thirty years of human life, the smaller intervals of time being given their proportionate values.

In entering the records to form the curves, it was found that the best comparison could be obtained if they were related so that, on the axis of ordinates, 1 mm. equalled 1 gram of rat body-weight, and 1 mm. equalled 250 grams of human body-weight.

This was the scale of the original drawing, which has been reduced for reproduction. The data used for the curves are those in

Table III, for the fœtal rat.
" I, for the male rats.
" II, for the female rats.[1]
" V, for man before birth.
" IV, for man after birth.

In the case of man, the weights are taken from Table V, the values given by Camerer for the male at one and two years being employed.

As Minot (1891) has indicated, it is important to begin the growth-records of this sort at the fixed point of conception. The period of gestation in man is here taken to be two hundred and eighty-five days, and in the rat twenty-one days. As the general relation of the two life-spans is as 1 to 30, we might expect that the period of gestation for man would be thirty times as long as that for the rat. As a matter of fact, it is only about fifteen times as long; so that, in the curves as they are drawn, the time of birth for man comes relatively earlier than for the rat.

When we take into consideration the great immaturity of the rat and its relatively long period of gestation, there seems to be but one conclusion possible; namely, that in the fœtal rat as compared with man the growth-processes are decidedly feeble.

PHASES OF THE GROWTH CURVE. — In all cases where records have been made, — i.e., man, rabbit, and the guinea-pig (Minot), — fœtal growth is represented by a curve which rises first slowly, then rapidly; the more rapid rise appearing during the second half of fœtal life.

[1] The calculated weights for breeding females between the ninety-second and one hundred and ninety-second day in Table II were those used in making the curve.

Leaving aside for a moment the interpretation of this curve in terms of the rate of growth, it is to be observed that there is in man a period of rapid rise, beginning at the middle of gestation, and continuing during the first year of extra-uterine life; while in the rat (the curve for which is based on the rabbit) the same event is entirely completed at the time of birth. Minot's observations on the fœtal guinea-pig also show this phenomenon of a rapidly rising curve at this time. Such being the case, it is possible to recognize between conception and maturity five phases in the growth-curve,—phases which are characterized by variations in the rise of the curve.

To facilitate the identifications of these several phases of growth in the curves which are here given, the following table is presented to show how they are marked off.

TABLE VI. PHASES OF GROWTH (MALES ONLY).

	TREND OF CURVE.	MAN (MALES).	RAT (MALES).
Phase 1.		First 140 days of gestation.	First 9 days of gestation.
Phase 2.	More rapid rise.	From 141st day of gestation to end of first year.	From the 10th to the 17th day of gestation.
Phase 3.		From beginning of 2d year to the 5th year.	From the 18th day of gestation to the 2d to the 7th day after birth.
Phase 4.	More rapid rise.	From beginning of 6th year to end of the 16th.	From the 3d to the 8th up to the 70th day.
Phase 5.		From the 16th year to maturity.	From the 71st day to maturity.

The limits of these phases are so modified by sex, that certainly Phases 5 and 4 in the female curve come earlier, and the same is probably true of Phase 3. Concerning Phases 2 and 1, we cannot at the moment speak, as the form of the curve given for the rat is merely inferred from observations on the rabbit, and the sexes are treated together.

COMPARISON OF CURVES FOR THE TWO SEXES.—In comparing the curves for the two sexes in man, we find the well-known differences whereby in Phases 2 and 3 the female shows a smaller body-weight than the male. Somewhat beyond the middle of Phase 4 the female grows more rapidly, and is for the time heavier. It should be remembered in this connection that the length of time during which the weight of the female remains greater than that of the male is much longer in a curve of the sort we are using than it usually is in the case of selected pairs. At the end of the fourth phase the female grows less rapidly, the curves recross, and the relations characteristic of maturity are attained.

On examining the corresponding curves for the rats (Plate II) we see the same relations repeating themselves in the same phases of the growth-curve.

As has been stated before, in the case of the rat the second phase is completed before birth; and the third phase then becomes evident, and continues for a few days after that event. In our present records it will be seen that the more active growth of the female begins as early as the seventh day after birth, and that in this particular set of observations the two curves cross about the fifteenth day. They remain crossed until the fifty-fifth day, when, after a few days of fluctuation, they recross and separate permanently.

In the rat, therefore, the curve for weight of the female is related to that for the male in the same way as are the corresponding curves in the case of man. In this instance, then, we have an animal widely removed from man in the zoölogical scale, belonging to an order palæontologically ancient, and exhibiting phylogenetically but a slight tendency to variation, which shows a series of growth-relations similar to those observed in man.

In a certain sense the purpose of this presentation is accomplished when we have shown in what relation the growth-curves of these two animals stand to one another. One is tempted, however, to go a step further, and call attention to the possibility that mammals as a class may grow in a like manner. This point has already been raised by Minot on the basis of his own observations of the guinea-pig, which, if I interpret them correctly, show a curve of growth for that animal which gives a long fifth phase preceded by a comparatively short fourth and still shorter third phase.

During the last of the third and beginning of the fourth, for about the first twenty-eight days of post-natal life, the female is slightly heavier than the male. This was the first instance where more vigorous growth in the female in lower mammals was noted and described.

Though not of an equal value with those just presented, there are some other records in the literature which seem to confirm the existence of this general relation.

CORNEVIN has tables (1892) showing the weight of growing cattle. These tables do not give all the information necessary; but, if curves for the growth of the two sexes in body-weight be plotted from the data as given on p. 481 of his paper, it appears that between the first and fourth months of post-natal life the female is heavier than the male.

Since in this species puberty occurs during the first year, this relation may express the pre-pubertal acceleration in the female. As the matter stands, however, the evidence is not very conclusive.

Ménard followed the growth of eight giraffes, taking the height at the withers. His measurements show a pre-pubertal superiority of the females at two years, puberty in this animal coming between the ages of three and four years. After puberty, the males have the greater height. Ménard remarks that the general size of the animals corresponded with the differences in the measurements which he has given, so that we can infer that they would probably have differed in weight in the same sense.

In his article on growth, in HERMANN'S "Handbuch der Physiologie," Vol. VI, 2, p. 262, the author, HENSEN (1881), gives a table showing a relatively greater rate of growth of young female guinea-pigs during the first fifty-one days of life. If, however, I interpret his figures correctly, the *absolute* weight of the females at this time was regularly less than that of the corresponding males, despite the more rapid rate of growth which the females exhibited.

In this connection it may be stated that the literature does not show any records by which opposite relation (i.e., more rapid growth of male) is demonstrated, — a fact which adds weight to the foregoing interpretation of these imperfect data. A word of caution is needed, however, against linking too closely the period of more rapid growth of the female with puberty. It so happens that in man the two events are nearly related; but, taking the other cases that have been well worked out, we find in the guinea-pig that at twenty-eight days the female is already growing more slowly than the male, though sexual maturity does not occur until the hundred and twentieth day; while in the rat, puberty is not attained until the sixtieth day at the earliest, at which time the female is growing less rapidly than the male, the onset of the rapid growth of the female having appeared about the eighth day of life. Our information in the case of cattle and the giraffe is not complete enough to warrant comments. The relation of these two events is therefore less close than a study of the data on man alone would suggest.

To prevent any misunderstanding concerning the significance to be attached to the direction of the curves here used as indications of the several phases, it is necessary to add one or two words on their general interpretation. Where the record for the change of weight appears as a straight line, we know that this indicates equal absolute increments in equal times. If, however, at any point in its course, the curve bends towards the horizontal, it indicates that for that period the absolute increment is less than for the preceding, and if it bends towards the vertical, that it is greater. It appears, however, as has been pointed out by Minot, that the rate of growth, as measured by the percentage increase from interval to interval, diminishes, *in all cases* observed, very rapidly and with but slight fluctuations from the earliest moment at which we can measure the growth-process up to the end of the growing period. The curve necessary to represent an *equal rate of growth* would be an exponential curve approximating the vertical with greater or less rapidity, according to the value of the rate.

From this it follows, that, in the cases before us, we are always dealing with a diminishing rate, and that the variations occur merely in the rapidity with which this diminution takes place. Hence in the several phases to which we have drawn attention, the parts of the curve showing rapid rise or slow rise, while they indicate variations in the increment of the absolute weight of the animal, at the same time indicate changes which represent in general a rapid though slightly varying diminution in the rate of growth.

CAUSE OF THE PHASES.

Before leaving the study of these records, it seems desirable to consider for a moment the explanation of the several phases.

We recognize, in the first place, that the growth with which we have to deal is dependent mainly upon cell-multiplication and cell-enlargement; further, that after several classes of cells arise within the organism, it is probable that we have to deal with modifications in the growth of one class due to the activities of others. If we survey the span of life from the beginning to the end, we find that in the first and second phases, principally, cell-division is very active, while in all the later phases cell-enlargement is the main cause of the increase in total size. Moreover, the last process is influenced by the number of cells which in each species is destined to undergo enlargement.

Since, in the rat, birth occurs during the third phase, cell-division as a factor in growth would appear to be comparatively insignificant between birth and maturity, cell-enlargement being the chief cause for the changes taking place.

A priori, we might expect that this process of enlargement would give us a simple steadily rising curve which rather rapidly turned and flattened as maturity was approached. Since the curve departs clearly from this form, having after birth three well-marked phases, in the first and last of which it rises slowly, separated by one (fourth phase) in which it rises more rapidly, it seems highly probable that the enlargement of the body as a whole is a resultant of the complex influences represented by the interaction of several systems; but into this division of the topic it is not our purpose at present to go. We note, however, that birth in man is relatively an early event, while puberty comes later—something more than halfway from birth to maturity; the relative interval between birth and puberty being nearly three times as long in man as in the rat.

As a result of this study, we conclude that man and the rat attain their adult weight after having passed through a series of phases similar for both animals; and that, moreover, in both of them the increase in body-weight in the two sexes is related in the same way.

DETAILS ON THE PERIOD OF MORE RAPID GROWTH OF THE FEMALE RAT.

Before closing this paper it will be desirable to give a little more detail bearing on that part of the rat curve in which the growth in the female is more rapid than in the male.

TABLE VII. DATA ON THE WHITE RAT, BEING DR. DUNN'S RECORDS OF THE AVERAGE WEIGHTS OF THE INDIVIDUALS COMPOSING DIFFERENT LITTERS FROM BIRTH TO 14 DAYS, ARRANGED BY LITTERS.[1]

AGE IN DAYS.	WEIGHT OF BODY IN GRAMS.			
	No. in Each Litter.	*Males.*	*No. in Each Litter.*	*Females.*
Birth	4	5.77	4	5.26
1 day	3	6.01	2	5.69
" "	4	5.96	4	5.86
2 days	2	6.06	3	6.02
3 "	5	6.26	5	6.19
3 "	3	6.35	4	6.13
4 "	6	7.06	6	6.52
4 "	4	6.79	4	6.45
5 "	3	9.56	3	8.43
5 "	2	7.88	2	7.46
5 "	4	7.57	4	7.16
6 "	4	8.10	3	7.69
6 "	3	11.99	3	10.54
6 "	4	7.91	5	7.77
7 "	3	7.49	2	7.88
7 "	3	8.19	2	7.61
7 "	2	7.92	2	8.60
7 "	3	12.59	2	10.77
8 "	4	10.35	3	10.76
8 "	4	12.43	3	11.80
8 "	2	11.30	3	12.58
8 "	4	7.84	4	7.40
9 "	3	12.66	2	11.99
9 "	3	12.22	3	12.23
9 "	4	9.70	4	9.76
10 "	3	13.27	2	13.87
10 "	3	11.22	4	10.28
11 "	4	13.25	2	12.84
12 "	3	16.53	3	15.89
12 "	3	13.06	2	14.22
13 "	5	15.29	5	15.10
14 "	4	14.64	3	14.58
14 "	2	16.27	2	17.12

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[1] Except for the ages, birth, one day, and two days, the average from the observations given above are used in Tables I and II.

If we analyze Dr. Watson's records, we find that there were seven out of ten litters in which both sexes were carried through the *entire* period of observation. In these seven litters, six of them show the female to be heavier at some time between the fifteenth and seventy-fifth day of life. In the seventh litter, the weight of the female, although always less, was closest to that of the male between the fortieth and fiftieth days. This seems to be ample evidence for the more vigorous growth of the female during the third and beginning of the fourth phases. Dr. Watson's observations, however, begin with the fifteenth day of life, at which time the female is already the heavier; and it was for Dr. Dunn to determine from her observations how the two sexes were related during the first fourteen days. The accompanying table (VII) shows the average weight of the separate litters, from which the weight of the rat during the first fourteen days has been determined. Where the average for the female is heavier for a given litter, the figures are printed in heavy-faced type.

For the ages birth, one day, and two days, Dr. Dunn's records have been supplemented by adding from the laboratory archives the following, the totals being also found in Tables I and II.

AGE.	NUMBER OF ANIMALS.					
	Males.			*Females.*		
	Dunn.	*Archives.*	*Total.*	*Dunn.*	*Archives.*	*Total.*
Birth	4	36	40	4	13	17
1 day	3	23	26	2	9	11
2 days	4	6	10	4	3	7

It appears that during the first six days of life, the average for the females is always less than that for the males. Beginning with the seventh day, and between this and the fourteenth day, nine out of the nineteen litters show an average for the female greater than that for the male. As reference to the table will show, these instances occur on the seventh, eighth, ninth, tenth, twelfth, and fourteenth days, but in the grand averages these relations are overbalanced, except on the eighth, twelfth, and fourteenth days. We infer from this that the period of more vigorous growth in the female begins about the seventh day of post-natal life.

Of course, from the biological standpoint, it makes no difference whether the curves of weight cross or not; the important change is the more rapid growth of the female during this early period. To better illustrate these events during the first seventy days of life, the first part of the curve (Plate II) has been enlarged to four times the scale on which it is there drawn, and is shown in Plate III. As to the time of recrossing, or the beginning of the slower growth of the female, which our curves show at the beginning of the fifth phase, we have another series of observations by Dr. Dunn on five litters.

In all these five litters there was a time during the fourth phase when the female was growing more rapidly than the male. The change in the rate of growth by which the female grows more slowly again may occur any time between the twentieth and sixtieth days, while on the average the growth in the female is found to be most rapid, as compared with the male, between the twenty-fifth and thirtieth day of life. After this, of course, begins the relatively slower growth of the female, which sooner or later leads to the relations of weight characteristic of maturity. There is, then, no question that the relations expressed by Dr. Watson's records are entirely correct, in that they show a relatively more vigorous growth of the female during the fourth phase, with the usual result of making the females absolutely heavier at this time.

CONCLUSIONS.

I. APPLYING TO BOTH RAT AND MAN.

1. The curves recording the increase in the body-weight of man and of the white rat between conception and maturity exhibit similar phases, five in number.

2. The growth of the female, in relation to that of the male, is similar in both forms, as are also the relative weights of the two sexes at maturity.

II. APPLYING TO THE RAT ONLY.

3. In the rat, as compared with man, the period of gestation is a larger fraction of the span of life, and puberty comes rela-

tively earlier, and longer before the mature body-weight is attained.

4. The age of puberty in the rat (60–70 days) is separated from the onset of more rapid growth in the female by a relatively long interval. The two events are therefore not necessarily closely associated.

5. In the rat, increase in body-weight during the last phase is continued for a relatively longer time than in man.

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EXPLANATION.

In the original drawing, 1 mm. = 1 gram of body-weight in the rat, laid off on the ordinate to the left; and 1 mm. = 250 grams of body-weight in man, laid off on the ordinate to the right in kilograms.

On the base-line, 1 mm. = 1 day of rat life, 12.15 mm. = 1 year of human life, and the zero-point is taken at the time of birth. To the left of the zero-point, 21 mm. are laid off, corresponding to the 21 days of gestation for the rat; and 9.4 mm. are laid off, corresponding to the 285 days of gestation for man.

The point of conception (*C*) coincides for the two curves; but as gestation in man is relatively only half as long as in the rat, and as the ages are in both cases counted from birth, the two curves are somewhat displaced, so that the 30th year of human life falls a little to the left of the 365th day of rat life.

The lines showing body-weights are heavier for man than for the rat; and in each case the curve for the male is indicated by the solid line, and that for the female by the broken one. For the records before birth no distinction for sex is made, and the solid line is used.

Where the curves for the two sexes run close together, the distances have been exaggerated in some instances in order to keep the lines distinct.

Chart reduced to one-third of the original dimensions.

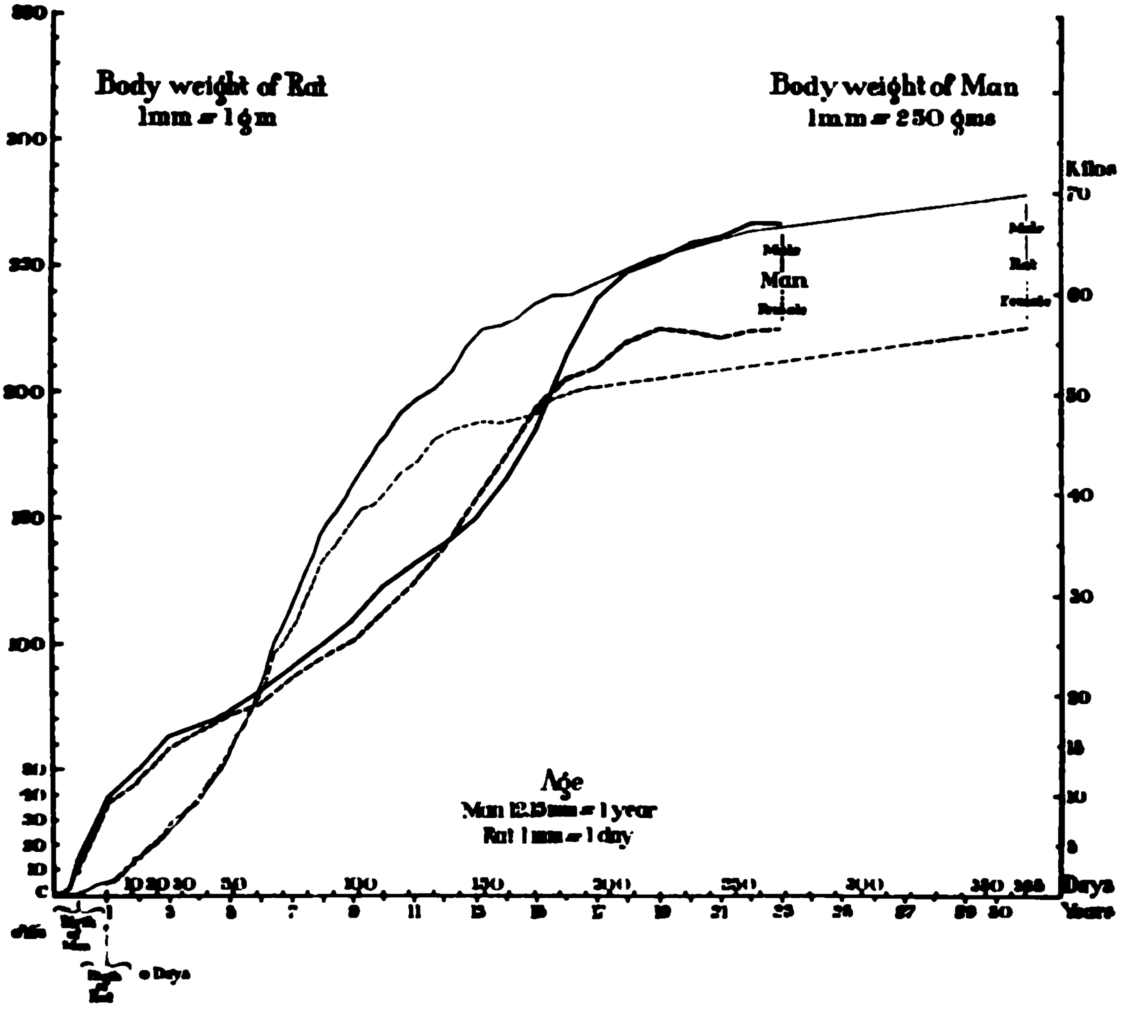

CHART SHOWING THE INCREASE IN THE BODY-WEIGHT OF MAN AND THE RAT WITH AGE.

DIE BEWERTUNG EINZELNER KÖRPERHÖHEN ALS RASSENANATOMISCHE MERKMALE.

VON J. KOLLMANN,

BASEL.

DIE Körperhöhe der Menschen schwankt bekanntlich innerhalb beträchtlicher Grenzen in allen Weltteilen. Die Schwankungen bewegen sich bei gesunden, ausgewachsenen Individuen zwischen 1200 und 1900 mm. Es entsteht nun die Frage, gehören diese Verschiedenheiten alle in das Gebiet der individuellen Variabilität, erzeugt die Natur wahllos, je nach innern oder äussern Bedingungen diese grossen, mittelgrossen und kleinen Leute, oder steht sie unter dem Einfluss bestimmter Regeln, und erzeugt mit einer gewissen Notwendigkeit einzelne Körperhöhen, welche als solche beständig sind und wie irgend ein anderes Rassenmerkmal regelmässig vererbt werden?

Die Beantwortung dieser Frage fällt noch sehr verschieden aus, doch besitzen wir umfangreiche Untersuchungen, und die gefundenen Tatsachen bieten der Diskussion wenigstens eine feste Unterlage.

Ich werde diese Untersuchungen wie die verschiedenen Ansichten in Kürze skizziren, dabei aber vorzugsweise die europäischen Verhältnisse berücksichtigen. Die europäische Menschheit weist zwei Kategorieen von Körperhöhen auf. Die eine oscillirt zwischen 1650 und 1750 mm und darüber. Leute dieser Art werden als *Grosse* bezeichnet. Die andere Kategorie schwankt von 1550 bis 1650, und Leute dieser Art werden als *Mittelgrosse* bezeichnet. Diese zwei Kategorieen halten nach der Ansicht vieler Beobachter ihre characteristischen Grenzen trotz verschiedener äusserer Bedingungen regelmässig ein, sie bleiben beständig, persistent, sowohl im Norden wie im Süden. Weder Nahrung noch Klima noch die geographische Erhebung des Landes haben einen *entscheidenden* Einfluss. Ich unterstreiche das Wort „entscheidend," denn darauf soll später noch besonderer Nachdruck gelegt werden, um Missverständnissen zu begegnen.

Auf die Dauerbarkeit zweier verschiedener Körperhöhen hat P. BROCA (1871) schon im Jahre 1859 hingewiesen und diese Erscheinung durch statistische Tatsachen für Frankreich überzeugend aufgedeckt. Die Rekrutenaushebungen haben das Zahlenmaterial geliefert, nicht allein dafür, sondern auch noch für eine andere Erscheinung, die seither vielfach anerkannt worden ist. Die Mittelgrossen sind in Europa durch brünette Complexion ausgezeichnet, die Grossen durch helle oder blonde Complexion. So unterscheidet denn P. Broca in Frankreich zwei Rassen, die er mit ethnologischen Namen belegt. Die Brünetten rühren nach seiner Meinung, die in Frankreich wohl allgemein geteilt wird, von den Nachkommen der Kelten und der Gallier her, sie heissen nach den erstern die keltische Rasse. Die andere wird nach den Cimbern die kymrische Rasse genannt. Diese Ergebnisse der somatischen Anthropologie werden durch historische und linguistische Forschungen so gesichert, dass in Frankreich zur Zeit wenigstens keine wesentlichen Änderungen der Broca'schen Angaben hervorgetreten sind. Was noch ergänzendes beizufügen wäre, ist durch zahlreiche Nachuntersuchungen ausgiebig beigebracht worden. Es ist in dieser Beziehung auf TOPINARD (1885) zu verweisen, der die somatische Karte Broca's reproducirt hat und eine ganze Reihe neuerer Arbeiten aufführt, welche vervollständigende Beiträge geliefert haben (S. 487 ff.). Die ethnologische für Frankreich so glücklich gelöste Frage von einer keltischen und einer kymrischen Rasse soll uns hier aber nicht weiter beschäftigen, denn in anderen Ländern gelten hierfür andere Namen; dagegen soll die Tatsache weiter beachtet werden von grossen blonden und mittelgrossen brünetten Leuten im übrigen Europa.

Es finden sich durch Massenstatistik nachgewiesen Grosse und Mittelgrosse in Belgien, auf den britischen Inseln, in Scandinavien, in Italien, in Deutschland, Österreich und in Russland.[1] Die in der Anmerkung aufgezählten Länder und die eben dort genannten Autoren haben ein enormes Material geliefert, und der Beweis scheint mir vollständig erbracht, dass Grosse und Mittelgrosse nicht etwa regellos und unvermittelt entstehen, sondern dass sie ein Produkt der Vererbung sind. Statistische Karten geben bekanntlich ein buntes Bild der Länder von verschieden gestalteten Bezirken und nicht etwa ein einheitliches Colorit. In diesem Ergebnis stimmen die älteren wie die neueren Arbeiten vollkommen überein.

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[1] In Belgien Untersuchungen durch Houzé; in England durch Beddoe, in Army Medical Report, 1891; in Norwegen Untersuchungen durch Arbo; in

Wenn trotz dieser umfangreichen Arbeiten die Deutung von der Existenz von Grossen und Mittelgrossen noch sehr schwankend ist, so rührt dies zum Teil davon her, dass die statistischen Erhebungen die Tatsachen nicht an allen Orten mit prägnanter Deutlichkeit hervortreten lassen. Überall leben die Grossen und Mittelgrossen ja nebeneinander in den nämlichen Gebieten, sie kommen sogar nebeneinander in derselben Familie vor, und so liegen die Resultate nicht oberflächlich vor dem Beschauer, sondern lassen sich nur durch Massenuntersuchungen mühsam herausschälen.

Dazu kommt noch die Tatsache, dass unter dem Einfluss ungenügender Ernährung die Körpergrösse sich vermindern kann. Das ist z.B. neuerdings mit aller nur wünschenswerten Sicherheit durch Livi für Italien (1905) nachgewiesen worden, und auch anderwärts wurde die nämliche Beobachtung gemacht; allein weder dieser Einfluss noch andere, die in dem socialen Elend der ärmeren Klassen ihre Wurzel haben, sind imstande, das Rassenmerkmal, das den erwähnten Körperhöhen nach meiner Überzeugung inhärent ist, vollständig unkenntlich zu machen. Das hebt Livi hervor, und Liétard (1898) hat es mit besonderem Nachdruck dargetan. Der letztere hat die Vogesenbevölkerung inbezug auf die Körperhöhe nach den Rekrutirungslisten von 1858 bis 1867 untersucht und eine unverkennbare Persistenz der grossen Blonden und der kleinen Brünetten trotz aller Einflüsse des Milieu wahrgenommen. In den einen Bezirken sind Berge und wenig Ackerbau, der Alkohol wirkt nachteilig, ebenso die Fabrikarbeit und

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Schweden durch Retzius und Fürst; in Italien durch Livi; in Deutschland durch Ammon, Ranke, Mayer, Meisner; in der Schweiz durch Kummer; in Österreich durch Scheiber, Weisbach; in Russland durch Anutschin; in Amerika ist die weisse Bevölkerung durch Gould und Baxter untersucht worden.

die damit verbundene Misere. In anderen dicht daneben liegenden Bezirken lebt eine ackerbautreibende Bevölkerung, welche keinen Alkohol consumirt und keiner Fabrikarbeit unterworfen ist, aber trotzdem sind in diesen so verschiedenen Bezirken die grossen Blonden und die kleinen Brünetten noch immer vorhanden.

Nun mag es Bezirke geben, in denen der statistische Nachweis aus verschiedenen Gründen schliesslich unmöglich wird, und das Rassenmerkmal, das sonst in der Körperhöhe liegt, allmählich eliminirt wird. Etwas dieser Art hat sich nach AMMON (1893) in vielen Bezirken des Grossherzogtums Baden im Laufe der Zeit vollzogen. Die statistischen Untersuchungen sind deshalb inbezug auf dieses eine Rassenmerkmal dort ergebnislos geblieben. Allein so schwierig liegen die Verhältnisse nicht überall. Für den Nachweis der grossen Blonden ist beispielsweise Schweden hervorragend günstig, wie aus den neuesten Untersuchungen von RETZIUS und FÜRST (1902) hervorgeht. Dort erhebt sich die Zahl der Grossen auf nahezu 60%, wobei die Köperhöhe 1700 mm und mehr erreicht. Die beiden schwedischen Forscher bemerken hierzu: „Der wichtigste Faktor des hohen Wuchses in Schweden scheint in einer Rasseneigentümlichkeit zu liegen" (S. 41). „Die im Auslande als ziemlich wahrscheinlich hervorgehobenen Einwirkungen in der Latitude und in der Höhe über dem Meer, dem Klima, der Fruchtbarkeit und den übrigen Naturverhältnissen sowohl als die in der Beschäftigung und der ökonomischen Stellung sind nicht hinreichend, um die Verschiedenheit zu erklären, welche seit Jahrhunderten vorhanden ist, wie dies Guldberg an den langen Röhrenknochen aus alten norwegischen Gräbern nachweisen konnte. Jedenfalls sind die Rassencharaktere für die verschiedenen Körpergrössen das wesentlich bestimmende" (S. 60).

Der Raum verbietet, noch weitere Einzelheiten dieser Art anzuführen. Ich verweise auf die in der Fussnote genannten Länder (S. 28), deren statistische umfangreiche Erhebungen den Eindruck, wenigstens mir, gemacht haben, dass die schon oft erwähnten Grössenunterschiede nicht nur in ganz Europa vorkommen, sondern dass sie auch rassenanatomische Merkmale darstellen.

Das Problem von einer solchen Bewertung einzelner Körperhöhen ist damit aber nur angedeutet. Zwei Erscheinungen verlangen noch weitere Beachtung.

Erstens kommen aus Italien, Portugal und Spanien Nachrichten, dass dort brünette Formen ebenfalls von *hoher* Statur zu finden sind, die in versprengten Haufen vorkommen, z.B. in Italien an den Abhängen des Ätna, in Calabrien, in der Campagna u.s.w. (GIUFFRIDA-RUGGERI, 1905). Sie sollen, wie Skelette zeigen, schon in der neolithischen Periode vorhanden gewesen sein. Ist dies der Fall, dann wird die somatische Anthropologie auch zu dieser Erscheinung Stellung nehmen müssen.

Zweitens ist die Kleinheit der Pygmäen zu berücksichtigen. Diese kleinsten Menschen zeigen nach meiner Meinung eine dritte Kategorie der Körperhöhe. Die geringe Körperhöhe ist es, die ihnen den Namen gegeben hat. Sie schwankt zwischen 1200 und 1500 mm. Genau lässt sich die Grenze noch nicht feststellen. Wie ist dieses Merkmal zu beurteilen? Hat es einen rassenanatomischen Wert oder gehören diese Kleinen zu den Mittelgrossen, und gehören sie ebenfalls noch in das Gebiet der Variabilität? Wie zwischen den Mittelgrossen und Grossen, so kommen auch zwischen den Kleinen und Mittelgrossen zahlreiche Übergänge vor, welche die Unterscheidung bei allen Kategorieen, überhaupt bei allen Rassenmerkmalen erschweren. Sobald es sich bei irgend einem Rassenmerkmal um die Feststellung der Grenzen handelt, beginnen die Schwierigkeiten und so auch bei der Körperhöhe.

Es handelt sich dabei stets um die schwierige Entscheidung, ob die Übergangsformen ein Produkt der phylogenetischen Entwicklung oder ein Produkt der Kreuzung und des Milieu sind. Sicher gibt es Übergangsformen, die durch Kreuzung und durch die Wirkungen des Milieu entstanden sind, aber ob dies auch mit den eben besprochenen drei Kategorieen der Körperhöhe der Fall ist, bedarf erst noch genauer Prüfung.

Einige Forscher, wie Schwalbe und E. Schmidt, räumen der Variabilität einen sehr grossen Spielraum ein und betrachten die von mir zuerst nachgewiesenen kleinen Menschen aus prähistorischer Zeit, die neben Grossen in Gräbern in Europa gefunden worden sind, lediglich als Grössenvariationen innerhalb derselben Rasse. Sie rechnen dazu auch die von Schenk, Thilenius und Nüesch gefundenen kleinen Skelette. Auch die von mir erbrachten Beweise für das Vorkommen von Zwergrassen in Amerika (Peru) halten sie nicht für ausreichend.[1] Gleichviel, abgesehen von diesen noch umstrittenen Kleinen, existiren doch die kraushaarigen Pygmäen Afrikas, nämlich die centralafrikanischen Zwerge,[2] dann die Buschmänner, die Aëta der Philippinen, die Andamanesen und die Semang der malaiischen Halbinsel. Diese sowie die schlichthaarigen Lappen werden von Schwalbe als Pygmäen anerkannt. Mit dieser Beurteilung werden sie also nicht nur als solche bezeichnet, es erhebt sich natürlich gleichzeitig die Frage nach der Bewertung ihrer geringen Körperhöhe als Rassenmerkmal.

Nachdem die als Pygmäen bezeichneten Vedda auf Ceylon und Toala auf Celebes (1905), ebenso die Senoi der malaiischen Halbinsel schon über die Grenze des Körpermasses der eigentlichen Pygmäen hinausragen (R. Martin und E. Schmidt), hebt der erstere noch ferner die Bewohner von Süd- und Ostasien hervor, welche alle möglichen Grössenzwischenstufen bis zur Körperhöhe von 1600 mm aufweisen.

Mit diesem Hinweis treten die schon bei den Grossen und Mittelgrossen erwähnten Meinungsverschiedenheiten über die Bewertung der Körperhöhe als Rassenmerkmal wieder in den Vordergrund und werden je nach der Auffassung von der phyletischen Entwicklung des Menschengeschlechtes ebenfalls verschieden beurteilt.

Diejenigen, welche Variabilität in einem sehr weitgehenden Sinne annehmen, und die Eingangs erwähnten Körperhöhen nicht als Rassenmerkmal anerkennen, setzen offen oder stillschweigend voraus, dass alle Übergangsstufen von einer Form zur andern erhalten bleiben. Es existiren, wie auch R. VIRCHOW einmal hervorgehoben hat, stets Übergänge, nirgends besteht eine Kluft. Ich habe den supponirten Vorgang in

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[1] Meine Angaben über das Vorkommen von Pygmäen in Oberägypten in den Gräbern von Abydos werden von THOMPSON, und jene von Pygmäen in Südamerika von TEN KATE bestritten.

[2] Körpergrössen mehrerer Gruppen bei ELLIOTT SMITH (1905).

Fig. 1 dargestellt als Schema der continuirlichen Entwicklung der Körperhöhe. Es sind mehrere Etappen angenommen. Dieses Schema kann für jedes beliebige Rassenmerkmal gelten, so auch für die Farbe der Augen, der Haare, der Haut u.s.w. Es soll andeuten, wie alle durch Variabilität entstandenen Formen persistiren. Die Linien, welche die Entwicklungsbahn darstellen und von einem Punkte ausgehend divergiren, erreichen alle die phyletische Lebensgrenze der Kleinen, Mittelgrossen und Grossen und stellen diejenigen Zwischenstufen oder Übergangsformen dar, welche die Entscheidung in jeder somatischen Rassenfrage so ausserordentlich erschweren. Sie sind nach der Ansicht vieler Forscher ebenso persistent wie die von der Systematik angenommenen Hauptformen trotz der bei dieser Auffassung innerhalb enger Grenzen vorhandenen Variabilität.

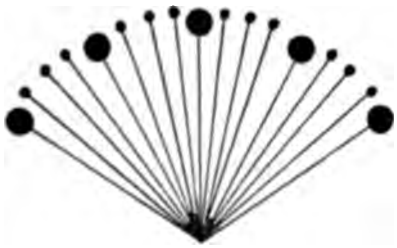

Fig. 1. Schema der continuirlichen Entwicklung der Körperhöhe.

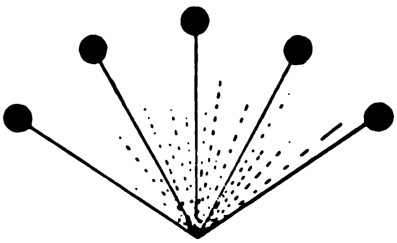

Fig. 2. Schema der unterbrochenen Entwicklung der Körperhöhe.

Ganz anders sind die Vorstellungen über die phyletische Entwicklung und über den Wert der Rassenmerkmale auf Grund der Selection, die in dem Schema Fig. 2 dargestellt ist. Dies Schema stellt die unterbrochene Entwicklung der Körperhöhe dar. Auch dieses Schema kann für andere Rassenmerkmale gelten, wie für die Farbe der Augen, der Haare und der Haut u.s.w. Auch bei diesem Entwicklungsgang entstehen Zwischenformen, die aber als nicht erhaltungsfähig, nach längerer oder kürzerer Zeit, untergehen. Diese *vergänglichen* Zwischenformen werden durch die punktirten Linien dargestellt. Ihre verschiedene Länge deutet darauf hin, dass die Existenz dieser Formen nur von schwankender Dauer ist, und dass sie die Lebensgrenze der persistenten Formen nicht erreichen.

Zur Erklärung der Übergangsformen wird bei dieser Auffassung auf die Kreuzung verwiesen, die nur sehr langsam Brücken schlägt, wie aus mehreren Mitteilungen, z.B. jenen von BOAS (1891 u. ff.), hervorgeht.

Diese beiden Annahmen über die Entstehung der Übergangsformen sind heute vielleicht in gleicher Ausdehnung bevorzugt.[1] Alle jene Beobachter, welche eine sehr grosse Variabilität annehmen, werden die Theorie der continuirlichen Entwicklung in den Vordergrund stellen und die drei erwähnten Körperhöhen als Rassenmerkmal für wertlos halten; jene dagegen, welche geneigt sind, in den drei Stufen ein persistentes Rassenmerkmal zu erblicken, werden sich entweder der Theorie der unterbrochenen Entwicklung oder der Mutationstheorie anschliessen. Eine notwendige Folge davon dürfte wohl sein, dass die Variabilität in ihrer Wirkung etwas eingeschränkt erscheint, dagegen die unläugbaren Resultate der Kreuzung mehr in den Vordergrund rücken. Ich stehe auf dem Boden der zweiten Theorie, derjenigen der unterbrochenen oder Selectionstheorie (Fig. 2), weil es mir scheint, dass die allzu ausgedehnte Rechnung mit der Variabilität ansehnliche Gefahren in sich schliesst, wie das folgende Beispiel erweisen dürfte.

R. Virchow hat einst eine weitgehende Variabilität vorausgesetzt, als es sich um die Beurteilung von Negritoschädeln handelte. Die Variabilität sollte so umfangreich sein, dass eine Schwankung in der Capacität der Schädel zwischen 800 und 1800 ccm angenommen wurde. Implicite war damit vorausgesetzt, dass auch die Körperhöhe in ausserordentlichem Grade variabel sei und bei einer und derselben Rasse von 1200 bis 1800 mm sich bewegen könne. Ich bin nicht geneigt, vom Standpunkt der Naturgeschichte des Menschen aus einen solchen Grad von Variabilität in der Schädelgrösse der Capacität und damit auch der Gehirnmenge anzunehmen.

Das von Schwalbe angezogene Beispiel mag für die Fischotter zutreffen, auf den Menschen diesen Grad von Variabilität zu übertragen, scheint mir verfrüht. Ich nehme deshalb an, R. Virchow sei durch falsche Etiketten getäuscht worden. Die grossen und kleinen Schädel, welche ihm vorgelegt wurden, ebenso wie jene, welche Schadenberg gesammelt hat, stammen von *grossen* Leuten *und* von *Pygmäen* der Philippinen, wurden aber insgesamt von den Lieferanten als Negritoschädel bezeichnet und von beiden Forschern für solche gehalten. Die Angaben von de Quatrefages bis zu A. B. Meyer über die Negritos und andere Nachrichten, darunter jene von W. A. REED (1904), bestärken mich in der Annahme, dass die Bezeichnung „Negrito" noch keine absolute Garantie bildet, und die Kritik über die Provenienz dennoch mit aller Schärfe gehandhabt werden muss. In dieser Auffassung bestärkte mich die Durchsicht der Schädelsammlung von den Philippinen, die sich in Leiden befindet, und deren Durchsicht mir von dem Herrn Direktor Dr. Schmeltz in der zuvorkommendsten Weise gestattet wurde, wofür ich ihm auch an dieser Stelle verbindlichst danke.[1]

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[1] **Eine dritte, die der sprungweisen Entwicklung, die Mutationstheorie, will ich nicht ausführen, weil das Endresultat mit der zweiten übereinstimmt.**

Nach einer ziemlich umfassenden Betrachtung von Negrito- und anderen Pygmäenschädeln erachte ich die Variabilität bezüglich der Schädelcapacität in bestimmte Kategorieen eingeschränkt, ebenso wie die Variabilität der Körperhöhe. Für die Körperhöhe glaube ich, wie schon erwähnt, drei solche Kategorieen annehmen zu dürfen, wovon zwei durch statistische Massenuntersuchungen erwiesen sind. Diese „klassischen" Körperhöhen, wie sie, für Europa wenigstens, aufgestellt werden dürfen, können durch das Milieu wie namentlich die sociale Misere zwar alterirt, aber nicht völlig beseitigt werden.

Die Übergangs- oder Zwischenformen zwischen diesen drei Kategorieen erklären sich meiner Meinung nach in zufriedenstellender Weise aus den Einflüssen des Milieu und aus der Kreuzung.

Die naturwissenschaftlichen Erfahrungen bezüglich der phylogenetischen Entstehung der Geschöpfe dürften weniger auf eine continuirliche Entwicklung (vergl. Schema 1) hindeuten, als vielmehr auf selective Vorgänge (vergl. Schema 2) und auf die Wirkung der Mutation. In jedem Falle scheint mir aber aus den Massenuntersuchungen soviel hervorzugehen, dass bei der männlichen Bevölkerung Europas mindestens zwei Körpergrössen, wahrscheinlich sogar drei, persistent sind und den Wert rassenanatomischer Merkmale besitzen.

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[1] Diese von Schadenberg erworbenen Schädel sind von KOEZE bearbeitet und publicirt worden (1901). Ich habe ihm, um weiteren Täuschungen vorzubeugen, nahegelegt, grosse und kleine Negritos je nach den Schädeln zu unterscheiden, so wie man jetzt auch grosse und kleine Hottentotten unterscheidet. Er hat diesen Vorschlag berücksichtigt, aber darob eine abfällige Kritik von R. Martin erfahren müssen.

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BEAUTY AMONG THE AMERICAN INDIANS.

BY ALEŠ HRDLIČKA.

BY the term " beauty " is generally understood a particular excellence of visual impressions, a visual effect above the ordinary in its exaltingly stimulating action on the mind, a charming entity.

Applied to human beings, and especially to those of the opposite sex, the concept " beauty " becomes more complex; but for civilized man its dominant component remains an excellence of the character and association of the visible features, especially the eyes and face. The elements which give rise to visual impressions that kindle in us a sense of beauty are primarily a fine, fresh skin, free from all blemish; choice cast and development of the parts and their harmony; pure color; brilliancy of the eye; and animation.

There is no race or tribe of mankind in which the white man's personation of beauty, as here outlined, is not encountered, and it is not restricted to one sex or age; but there are wide differences in the grade of beauty and the frequency of its occurrence. It predominates in the white races, mainly by reason of the relatively great individual variation among them. It is less apparent among the yellow-brown peoples, and least so among the pure blacks, where physical individualization, also, is most limited. It is finally, in general, more common at three distinct periods of life,—in infancy, during the latter part of adolescence, and in full early manhood and womanhood. As to a greater prevalence of beauty in one or the other sex, an unbiased observer would probably find great difficulty in deciding. There is, unquestionably, a greater delicacy in female beauty, due partly to inborn differences in the skin and features, and partly to the effects of varying modes of life.

As to Indians, beauty in general is less common than among the whites, and it seldom reaches the exquisite; but there is no tribe in which are not occasionally seen one or more lovely infants or maidens, and comely youths or young men. Some tribes are probably more favored in this respect than others, but a sound judgment on this point is very difficult. Among the Southwestern and North-Mexican tribes, best known to the writer, the first place for manly beauty belongs to the Navaho, after whom may be mentioned the Yuma, Cocopa, Mohave, and Cora. Female beauty seems to be distributed more evenly, but is perhaps met with more than elsewhere, or in a more refined form, among the Tlahuiltec (Aztecs, Morelos), Navaho, Lipan, Apache, Pueblos, Papago, and Cora.[1]

An important element of Indian beauty is a perfect development of the body, which is usually attended by good health and nourishment. In the development of his body the Indian is decidedly superior to the white. He is not stronger, but nearer perfect and more plastic. He has, with rare exceptions, not as yet suffered the deforming influences of rachitis or of various occupations. The carrying of water in jars on the head, requiring equilibrium, tends to make the girl even straighter than she would otherwise grow, and some of them are as straight in bearing as the pines of the Southern mesas. The boys develop by play and sports, and the bodies of many would delight the artist. In the infants the inborn attractiveness is often augmented by perfect nourishment and brightness of expression.

The individual features of a beautiful Indian can in brief be outlined as follows, their harmony being granted.

CHILD.—Color of skin, various shades of fresh medium and lighter brown; a good-sized, regular head, covered with quite an abundance of perfectly black, straight, lustrous, moderately fine hair; a medium or slightly sub-medium forehead, covered, particularly towards the sides and in earlier age, with perceptible down; black brows, not seldom connecting; upcurving, black eyelashes of good length; slightly to moderately oblique eye-slits, with the outer canthi, particularly the right, higher; a perceptible "Mongolic" fold at the inner canthus; eyeballs quite large, of pure tints; black pupil, fine dark hazel-brown iris, a delicate blue conjunctiva, and often a fine, dark, bluish, narrow ring about the iris; nose short, bridge and septum nearly straight, alæ slightly broader than in whites, and never very thin; lips very slightly fuller than average in white infants, well formed and lined, of a duskier red color; chin moderate; cheeks full, but not to excess; ears moderate in size, well shaped; neck rather short; body very well developed and nourished, without superabundance.

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[1] See also R. W. SHUFELDT, Indian Types of Beauty (The American Field, Vol. XXXVI, Nos. 23–25, Chicago, 1891, Reprint, pp. 1–24).

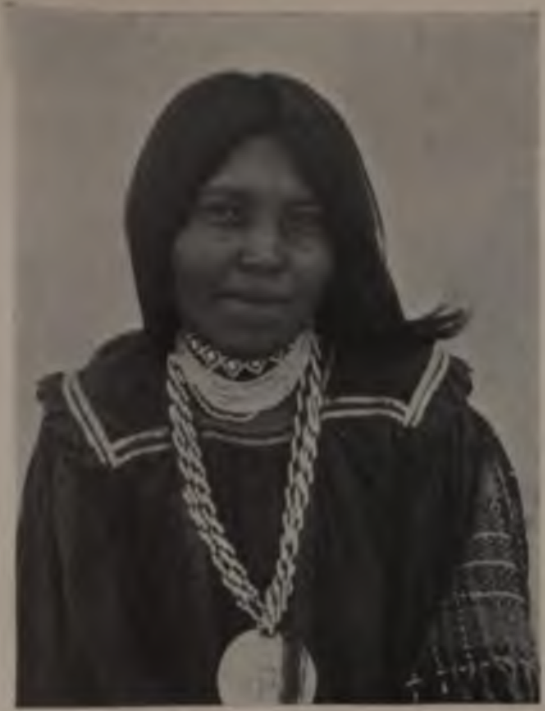
YOUNG WOMAN (17–20 years, childless).—Color of skin medium to light brown; head fair size, regular, covered with good quantity of black, straight, slightly lustrous hair, a very little coarser than in average whites; forehead vertical, medium high, nicely arched; eyebrows and eyelashes moderate; eye-slits slightly oblique, with external canthi, particularly the right, higher; no "Mongolic" fold; pupil black, iris fine dark hazel-brown, irideal ring blackish, conjunctiva white or with a tinge of bluish or yellowish; nose straight, or a little concavo-convex, or a little convex, with a rather wide but not deep depression over the root, and a horizontal or nearly horizontal septum, the alæ being slightly broader than in whites; the mouth region showing a slight to moderate prognathism, the lips a trace fuller than in average whites, well formed, red with a dusky tinge; the mouth itself of medium size, teeth clear white, medium size, very regular; chin moderately prominent, nicely rounded; the malar region slightly fuller than in average whites; ears and cheeks well moulded, the latter with dusky flush; neck of medium height and thickness; shoulders slightly sloping, chest and dorsal region as in healthy whites; breasts never very small or large, inclining to conical in form, areola dark, nipple larger than in whites; waist perceptibly narrower than chest or hips, the latter well developed, but not excessive; lumbar curvature and prominence backward of the sub-lumbar region rather less than in whites; abdomen not pendant; thighs and the rest of lower limbs rather less adipose and more shapely than in white women, calves smaller; arms feminine, hands and feet small, fingers and toes never very long.

YOUNG MALE ADULT (24–30 years).—Color of skin medium to darker brown; head fair size, regular; hair quite abundant, black, straight, with slight lustre, very little coarser than in average whites; forehead slightly sub-medium and little sloping; supra-orbital ridges well developed mesially; eyebrows and eyelashes medium; eye-slits straight to slightly oblique, no trace of "Mongolic" fold; pupil black, iris dark hazel-brown, irideal ring blackish, conjunctiva white with a tinge of yellowish; nasal depression well marked, bridge moderately convex, or concavo-convex, or straight, septum slightly inclined downward, alæ slightly broader than in average whites, never very thin; sparse, short, black, straight beard on upper lip, especially over the corners of the mouth, and on chin; moderate alveolar prognathism, lips slightly fuller than in whites, well formed, dusky red, mouth good size, teeth white, fair size, very regular, chin of moderate prominence, malars slightly more pronounced than in whites, ears regular, fair-sized, whole face stronger and less rounded by adipose tissue than in the female; neck of moderate height and strength, never long, thorax regular, quite deep and spacious, waist a little smaller; limbs of medium muscularity, calves smaller than in whites; hands and feet of moderate size.

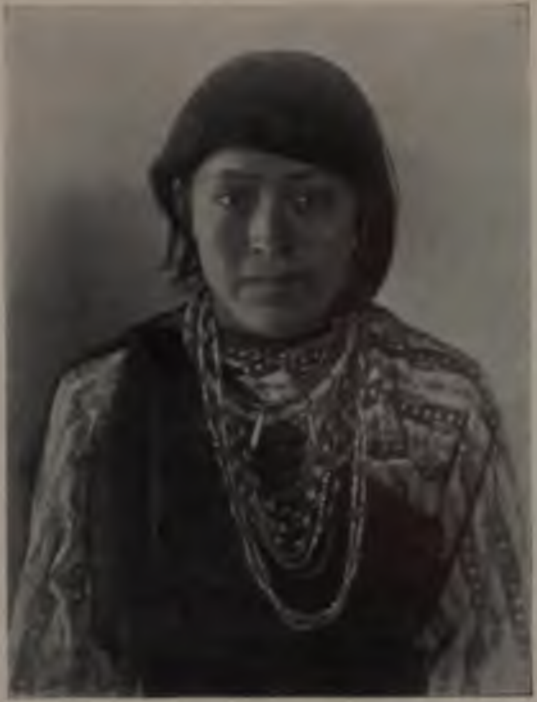
	YOUNG MAN. (*Navaho*) *cm.*	YOUNG WOMAN. (*Tarahumare*) *cm.*
Height	170.9	149.5
Maximum finger-reach	177.4	150.2
Height sitting	91.8	81.0
Head: Diam. antero-posterior max.	18.5	17.7
Diam. lateral max.	15.0	13.6
Height, line of auditory meati to bregma	13.8	12.7
Face: Chin to hair-line	19.1	16.6
Height of forehead (nasal depression to hair-line)	7.0	5.8
Maximum breadth (diam. bizygom. max.)	14.5	13.4
Diam. frontal minimum	10.8	10.1
Height of nose	5.5	4.3
Greatest breadth of nose	4.0	3.1
Width of mouth	5.4	5.1
Depth of chest at height of nipples	20.4	above breasts 19.8
Breadth of chest at height of nipples.	30.3	above breasts 28.0
Length of left hand (wrist-line — end of medius)	19.3	15.2

	cm.	*cm.*
Breadth of left hand (from base of the thumb, ventrally, across)	8.4	7.8
Length, maximum, of left foot	24.8	21.3
Breadth, maximum, of left foot	8.8	8.3
Maximum girth of leg	32.3	29.0

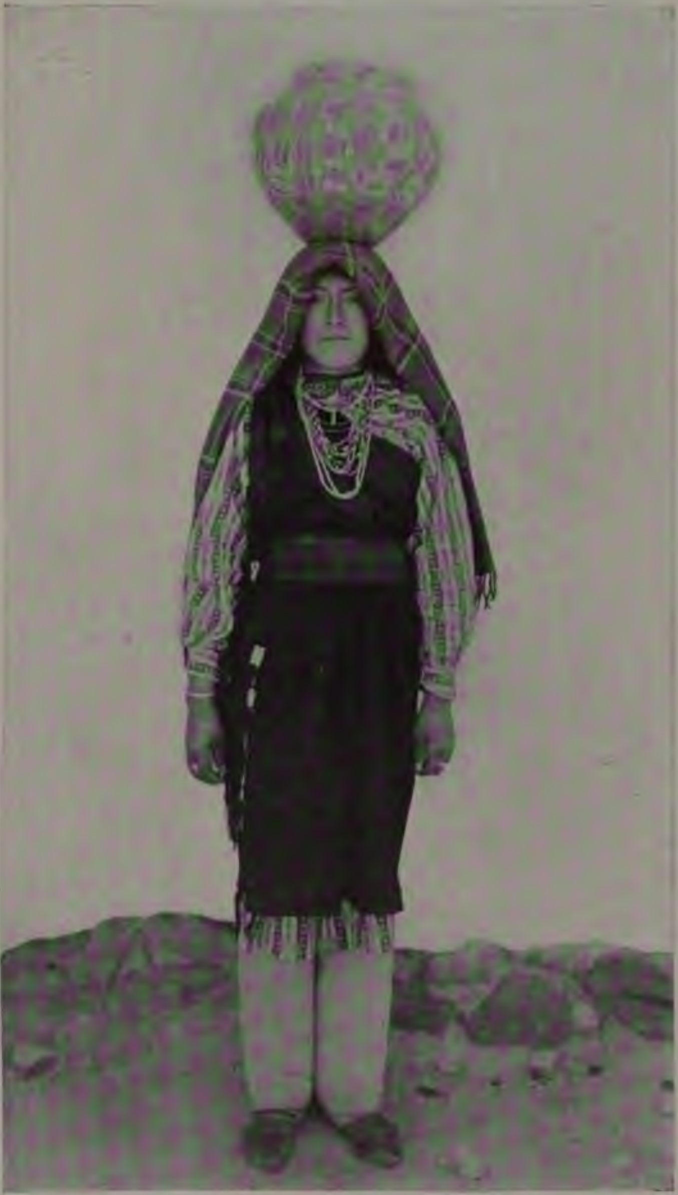
The above table gives the measurements of a young adult Indian female and a young adult male, both pure-blooded and of unusual personal attractiveness.



YOUNG FULL-BLOOD APACHE WOMAN WHITE MOUNTAIN, ARIZ.

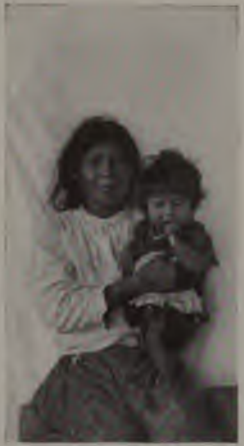


ANNIE, FULL-BLOOD LAGUNA GIRL.

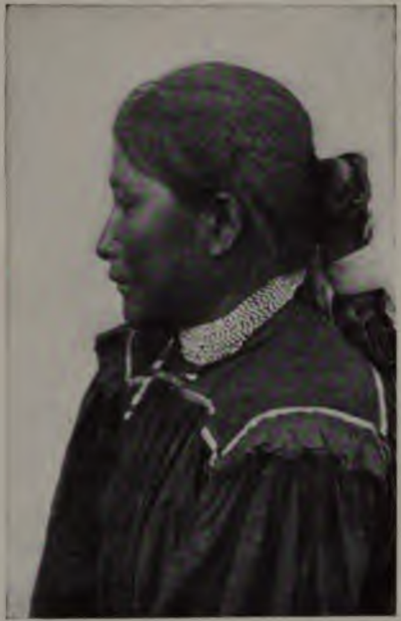


FULL-BLOOD LAGUNA GIRL.

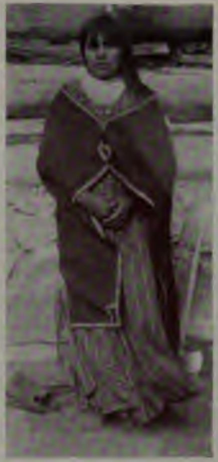
Plate VI.



A FULL-BLOOD PAPAGO INFANT.



YOUNG FULL-BLOOD APACHE WOMAN,
WHITE MOUNTAIN, ARIZ.



YOUNG FULL-BLOOD WALAPAI WOMAN

ZUR FRAGE DER CORRELATIONEN DER MUSKELVARIETÄTEN.

VON JAN CZEKANOWSKI,
ZÜRICH-WARSCHAU.

ES gibt wahrscheinlich wenige Gebiete in den Naturwissenschaften, wo die anerkannten und beschriebenen Normen öfters durch die Tatsachen im Stiche gelassen werden als in der Myologie.

Die in den Lehrbüchern beschriebenen und in den Atlanten abgebildeten Formen werden bei der Untersuchung so oft in modificirter Form festgestellt, dass es sehr schwer ist, ein Individuum zu beobachten, an welchem der ganze Tatbestand der Erwartung entsprechen würde.

Diese Abweichungen von der üblich beschriebenen Norm werden als Anomalieen bezeichnet. Viel geeigneter ist die ebenfalls gebräuchliche Bezeichnung „Muskelvarietät," weil in dieser Weise die Notwendigkeit der Diskussion der Begriffe des Normalen und Abnormen umgangen wird. Wir wollen die letzte Bezeichnung im Laufe unserer Betrachtung anwenden.

Die Beziehung der alten Anatomen zu der Erscheinung der Muskelvariation ist nichts weniger als sympathisch gewesen. Die Varietäten verursachten oft Verlegenheit und bereiteten mancherlei Unannehmlichkeiten, wenn auch von weit harmloserer Natur als die, welche aus der Arterienvariation bei operativen Eingriffen für die Chirurgen entsprangen. Man wusste in der alten Schule nichts mit dieser Erscheinung anzufangen und verhielt sich zu ihr ebenso wie den übrigen Erscheinungen der Variation gegenüber, d. h. man ignorirte sie einfach.

Eine Umwertung der Werte rief erst die evolutionistische Hypothese hervor, als man die unverständlichen und nicht berücksichtigten Tatsachen, die in der alten Anschauung keinen

Platz finden konnten, zum Aufbau der neuen Theorie verwenden wollte.

Es wurde eine Reihe von Untersuchungen publicirt, die der Frage der „abnormen" Variationen gewidmet waren, wie die von Gruber, Testut, Wood, Macalister und vielen anderen.

Die Adoption der evolutionistischen Hypothese hatte zur Folge, dass man im „Abnormen" entweder die Prophezeiungen der Zukunft oder, was viel häufiger der Fall war, die Spuren der verlassenen Entwicklungsstufen erblicken wollte. Es wurde alles, was Ähnlichkeit mit einfacheren (primitiveren) Formen aufwies, als Atavismus gedeutet. Dabei nahm man zu einer Definition des Atavismus die Zuflucht, die sich folgendermassen kurz formuliren lässt: „Der Atavismus ist die Reproduktion—in einem Individuum oder einer Gruppe von Individuen—nützlicher oder schädlicher anatomisch-physiologischer Merkmale, die den Eltern bereits fehlen, aber bei den Ahnen vorhanden waren."

Man könnte zur allgemeinen Charakterisirung der Arbeiten über Muskelvarietäten aus der Zeit der ersten Begeisterung für den Evolutionismus bemerken, dass die Begriffe der Homologie und Analogie nicht scharf auseinander gehalten wurden. Das erlaubte nicht, die Convergenzerscheinungen recht zu würdigen.

Das Studium der Muskelvarietäten beschränkte sich hauptsächlich auf die Beschreibung der vorkommenden Formen und das Aufsuchen der gleichartigen in der phylogenetischen Reihe. Die Frage nach der relativen Häufigkeit der einzelnen Variationsformen wurde nur nebenbei und in einer sehr unvollkommenen Weise berücksichtigt.

Wenn man von der evolutionistischen Hypothese ausgeht, so ist es durchaus nicht notwendig anzunehmen, dass ganze Species oder einzelne Individuen derselben die in der Entwicklungsreihe liegenden Formen reproduciren müssen. Diese Annahme würde erlauben, manche Consequenzen zu ziehen, die sich inbezug auf ihr Eintreten oder Fehlen durch Beobachtungen controlliren lassen, was einen Rückschluss auf die Richtigkeit derselben gestattet. So z.B., erstens, dass die Variationen sich auf Entwicklungshemmungen oder Beschleunigungen zurückführen lassen, und zweitens, dass die Correlationen der Variationen bestimmte Gesetzmässigkeiten zeigen. Diese Annahme schliesst aber die Möglichkeit des Eintritts der sekundären Annäherungen der Formen im Laufe der Entwicklung (der Convergenzen) nicht aus.

Die evolutionistische Hypothese erlaubt aber auch einen anderen Standpunkt. Man kann das durch Beobachtung Gegebene mittels einer möglichst einfachen Formel zusammenzufassen suchen und in der evolutionistischen Hypothese eben diese Formel sehen. Die Übersicht der Tatsachen wird dadurch wesentlich vereinfacht, da die Frage des unbeantwortbaren „warum" durch ein „wie" ersetzt wird.

Unter diesem Gesichtspunkte kann man die phylogenetische Verwandtschaft ausschliesslich für einen Rückschluss aus der Ähnlichkeit, im weitesten Sinne des Wortes, auf die Zusammengehörigkeit (Classifikation) betrachten. Dabei werden diejenigen Ähnlichkeiten, die sich nicht in Einklang mit dem gesamten System bringen lassen, als Convergenzen, die nicht zu erwartenden Verschiedenheiten dagegen als Divergenzen definirt.

Bei dieser Auffassung werden für uns die einzelnen Individuen nur zu Combinationen von Merkmalen. Da diese letzteren nicht constant bleiben, so ergibt sich folgende Fragestellung:—

1) Zeigen die Merkmale Gesetzmässigkeiten in ihrer Veränderung, und wenn so, welche?

2) Zeigt die Vereinigung von Merkmalen zu Complexen Gesetzmässigkeiten, und wenn so, welche?

Angesichts unseres anatomischen Problems bekommt diese Fragestellung folgenden Wortlaut:—

1) Wie verhalten sich die Frequenzen der einzelnen Muskelvariationen?

2) Combiniren sich die verschiedenen Muskelvariationen untereinander zufällig, oder lassen sich hier gewisse Gesetzmässigkeiten beobachten, und wenn so, welche?

Die erste Frage bedarf keiner weiteren Erläuterung. Die Erledigung der zweiten besteht in der Untersuchung, ob gewisse Muskelvarietäten relativ häufiger zusammen oder getrennt vorkommen als dass unter Annahme der zusammenhanglosen Combination („durch Zufall") zu erwarten wäre. Mit anderen Worten, es ist festzustellen, ob zwischen bestimmten Muskelvarietäten gewisse Affinitäten—wenn man diesen Ausdruck gebrauchen will—bestehen.

Es sei nebenbei bemerkt, dass man von positiver Correlation zweier Erscheinungen spricht, wenn sie häufiger zusammentreffen, und von einer negativen, wenn sie seltener zusammentreffen als dass unter Annahme der zusammenhanglosen Combination zu erwarten wäre.

Die weitere Entwicklung der Fragestellung bringt uns auf folgende Probleme inbezug auf das Verhalten beobachteter Gesetzmässigkeiten in Zeit und Raum. Im Anschluss an den Gegenstand unserer Arbeit wird das lauten:

3) Sind die Ergebnisse der Beobachtung vom Orte abhängig, und wenn nicht, ob dann gewisse Gesetzmässigkeiten zum Vorschein treten?

4) Sind die Beobachtungsergebnisse unabhängig von der Zeit? Dabei ist zu unterscheiden zwischen den Altersstufen des Individuums und der Veränderung der Species in den Beobachtungs-Intervallen.

Die über Muskelvariationen gemachten Annahmen sind aufzufassen als Versuche zur Aufstellung allgemeiner Sätze, aus denen sich die Beantwortung der oben gestellten Fragen widerspruchslos ergäbe. So ist die Annahme, dass sowohl ganze Species wie auch einzelne Individuen Entwicklungsstufen demonstriren, der Versuch eines allgemeinen Satzes. Dieser ergibt Schlüsse zur Beantwortung der oben gestellten Fragen, die aber, wie gezeigt werden kann, den Beobachtungsergebnissen widersprechen.

Nicht nur allgemeine Sätze, sondern allerlei Annahmen hatten hier wie auch überall die übersichtlichere Gruppirung der Ergebnisse bezweckt. So wurden die Begriffe der Convergenz und Divergenz eingeführt. Es liegt nicht in dem Rahmen dieser kurzen Arbeit, die Convergenz-Erscheinungen im Gebiete der Muskelvariationen festzustellen. Die Convergenz soll nur als ein möglicher complicirender Umstand der Untersuchung hervorgehoben werden. Nicht nur beobachtete, sondern auch nur erwartete Verschiedenheiten hatten Annahmen zur Folge. So hob Professor Schwalbe in Erwartung der verschiedenen Häufigkeiten der einzelnen Muskelvarietäten an verschiedenen Orten die Heterogenie der Species hervor und betonte die Rassendifferenzen. Die bisherigen Zählungen der Muskelvarietäten berücksichtigten die Möglichkeit der verschiedenen Ergebnisse nicht und erstrebten, allgemein die Häufigkeit der einzelnen Varietäten in der Species Homo oder höchstens beim weissen oder schwarzen Menschen festzustellen. Ein Anschluss an die anthropologischen Einheiten (Typen) wurde dabei nicht gesucht. Die Zweckmässigkeit dieses Anschlusses wurde erst durch Professor Schwalbe hervorgehoben, indem er Merkmale wie Körpergrösse, Kopfform, Irisfarbe in die Beobachtungsschemata einführte und die deutschen Anatomen zur Durchführung der für langweilig geltenden Untersuchungen zu begeistern suchte; doch enthalten die bis jetzt publicirten Daten keine genaueren Angaben über Rassendifferenzen.

Da das Beobachtungsmaterial in verschiedenem Grade aus den Vertretern beider Geschlechter zusammengesetzt sein kann, so tritt als weiterer complicirender Umstand hinzu die Geschlechtsvermischung im Falle bestehender sexueller Differenz. Und endlich, da der menschliche Körper nicht ganz symmetrisch gebaut ist, so ist die Verschiedenheit der beiden Körperhälften im Auge zu behalten.

Dass die Altersdifferenzen die Untersuchung compliciren könnten, ist dagegen wenig wahrscheinlich, da die Muskeln schon bei der Geburt ihre definitive Form besitzen.

Noch weniger wahrscheinlich sind Artveränderungen, die sich in beobachtbarer Zeit constatiren liessen.

Das mir zur Verfügung stehende Material erlaubt aber nicht, auf das Studium der complicirenden Umstände einzugehen, da es einerseits zu wenig zahlreich ist, um nach gänzlicher Trennung der beiden Geschlechter und der beiden Körperhälften zuverlässige Resultate zu liefern, und anderseits da die Angaben über somatologische Eigenschaften wie Körpergrösse, Irisfarbe u. s. w. fehlen.

Wir müssen uns also auf die allgemeine Feststellung der Variations- und Correlationsgrössen beschränken, wobei die sexuellen Differenzen und die Körperasymmetrie nur insofern in betracht gezogen werden können, als sie die Fehlergrenzen übersteigen.

Ich verdanke die Möglichkeit, diese Frage zu behandeln, der Freundlichkeit von Professor R. Martin, der mir seine Beobachtungen über Muskelvariationen aus den Jahren 1891–94 gütigst zur Verfügung stellte, und die ich mit den eigenen aus dem Jahre 1905–06 (ebenfalls in Zürich gemachten) ergänzen konnte.

Zur Bearbeitung der Beobachtungen bediente ich mich der von Professor Karl Pearson entwickelten quantitativen Methode.

Diese Untersuchung beschränkt sich auf die häufigsten, also der Untersuchung zugänglichsten Variationen.

Es wurde berücksichtigt:—

1) Das Auftreten des *M. sternalis.*

2) Das Fehlen des *M. pyramidalis.*

3) Das Fehlen des *M. teres minor.*

4) Das Auftreten, a) des *M. biceps brachii* III aus dem *M. brachialis;* b) der übrigen überzähligen Bicepsköpfe.

5) Das Fehlen des *M. palmaris longus,* wie auch die distale Lage des Bauches.

6) Das Auftreten des *M. psoas minor.*

7) Die Durchbohrung des *M. piriformis* durch den *M. peroneus.*

8) Das Fehlen des *M. plantaris.*

9) Das Fehlen des *M. peroneus* III.

10) Das Fehlen der Sehne zum V. Finger des *M. flexor digitorum pedis brevis.*

Überall, wo weitere Angaben fehlen, sind die Muskeln nur inbezug auf das Auftreten oder Fehlen untersucht.

Die Ergebnisse sind in den Zahlentabellen I und II (Plates VII, VIII) angegeben und gestatten einstweilen noch keine allgemein zusammenfassenden Schlüsse.

Zur Charakterisirung der gewonnenen Zahlen lässt sich nur Folgendes sagen:—

I. Die Häufigkeiten der einzelnen Variationen sind verschieden. Sie schwanken zwischen 0% und 50%, d. h. sie nehmen alle möglichen Werte an, da eine Varietät, die in 50% oder mehr auftritt, zur Norm wird. In unserer Untersuchung weist *M. psoas minor* die maximale, *M. sternalis* die minimale Häufigkeit der Variation auf. Das Fehlen des *M. psoas minor* ist wahrscheinlich die häufigste Muskelvariation überhaupt, da sie um 50% schwankt. Das Auftreten des *M. sternalis* mit einem Häufigkeitsbetrage von ca. 3% ist durchaus nicht die seltenste. Je geringer die Häufigkeit einer Variation ist, desto grössere Beobachtungsreihen verlangt die Untersuchung. So lagen die Untersuchungen über Correlationen des *M. sternalis* mit den übrigen Muskelvarietäten schon unter der Schwelle der Zuverlässigkeit. Das gab Veranlassung zur Beschränkung der Untersuchung auf die häufiger auftretenden Variationen.

II. Die Häufigkeit einer Varietät steht im umgekehrten Verhältnis zur Entfernung der phylogenetischen Stufe, bei der sie Norm ist. So ist *M. sternalis,* der an sehr primitive Zustände erinnert, die seltenste, der *M. biceps brachii* III aus dem *brachialis internus,* der bei Anthropoiden eine Norm darstellt, eine viel häufigere Varietät. Wenn man sich vergegenwärtigt, dass die phylogenetische Beziehung ein Rückschluss aus der Ähnlichkeit ist, so wird die oben aufgestellte Behauptung nur eine andere Formulirung der überall beobachteten Tatsache sein, dass die Häufigkeit mit der Grösse der Abweichung abnimmt.

Je weniger eine Form einer anderen im weitesten Sinne des Wortes ähnlich ist, um so grösser wird die phylogenetische Entfernung der beiden angenommen. Deshalb ist eine Variation, die an eine entferntere, weniger ähnliche Form erinnert, eine grössere Abweichung von der Norm, und die geringere Häufigkeit der Variationen, die sich an phylogenetisch entferntere Zustände anschliessen, eine geringere Häufigkeit der grösseren Abweichungen.

Falls die Frequenz der Variationen nur von diesem Faktor abhängig wäre, so könnte man, unter Annahme eines Gesetzes über die Verteilung der Häufigkeiten der Abweichungen die relative phylogenetische Entfernung der einzelnen Formen bestimmen. Doch der Mangel der durchgreifenden Übereinstimmungen veranlasst, an weitere Faktoren zu denken.

III. Die Unbeständigkeit der Form eines Muskels steht im umgekehrten Verhältnis zu seiner funktionellen Inanspruchnahme. So zeigt der *M. sternalis,* über dessen gegenwärtige Funktion man sich keine Vorstellung bilden kann, sowohl inbezug auf die Form wie auch auf das Auftreten die grösste Unbeständigkeit. *M. psoas minor,* dessen Funktion beim Menschen jedenfalls sehr gering sein muss, zeigt auch sehr grosse Unbeständigkeit. Die verschiedene Variabilität des *M. biceps brachii* stimmt mit der oben ausgesprochenen Behauptung überein. Der funktionell stärker in Anspruch genommene rechte Arm zeigt inbezug auf diesen Muskel eine bedeutend beständigere Form.

Der gegenwärtige Stand der Kenntnisse dieses Problems erlaubt noch nicht zu beurteilen, ob die beiden oben angegebenen Faktoren, die phylogenetische Verwandtschaft (im Satze II) und die funktionelle Inanspruchnahme (im Satze III) ausreichen, um alle Modalitäten der Häufigkeiten der Muskelvarietäten zusammenzufassen. Es ist nicht ausgeschlossen, dass sich die Notwendigkeit, weitere Faktoren einzuführen, zeigen wird. Das Angegebene demonstrirt nur die conservative Kraft der Vererbung und die modificirende Kraft der Funktion. Die beiden Faktoren können, der Annahme gemäss, sich entgegenarbeiten, sie brauchen sich aber nicht aufzuheben. Auf diese Weise ist die Möglichkeit einer Mannigfaltigkeit der Resultate gegeben, die beim gegenwärtigen Stande der Kenntnisse auf ihre Übereinstimmung noch nicht strenge controllirt werden kann. Die strenge Behandlung dieser Fragen setzt manches voraus; in erster Reihe 1) die Möglichkeit, die phylogenetische Entfernung der einzelnen Formen zu beurteilen, und 2) die Bemessung der funktionellen Inanspruchnahme eines Organs. Davon sind wir aber noch weit entfernt.

IV. Die an verschiedenen Orten gemachten Beobachtungen weisen Differenzen auf, die sich nicht wohl auf „Zufall oder individuelle Beobachtungsfehler" zurückführen lassen. Das erlaubt den Schluss, dass die Heterogenie der Species auch in Muskelvarietäten ihren Ausdruck findet. So wird der Begriff der Rassendifferenz in die Diskussion eingeführt. Ob der neue Faktor sich auf die zwei oben angegebenen ohne weiteres zurückführen lässt, oder auch eine Einschränkung der durch die ersten zugelassenen Mehrdeutigkeit ist, kann hier nicht entschieden werden.

Die Ergebnisse der Beobachtungen von Zürich stimmen mit denen von Strassburg besser als mit denen von Massachusetts und England überein; die von Massachusetts zeigen grössere Übereinstimmung mit den englischen als mit den schweizerischen und deutschen, was unter Annahme der Rassendifferenzen von vornherein zu erwarten ist. Doch darf man noch immer nicht vergessen, dass die Schlüsse sich auf eine geringe Anzahl von Beobachtungen stützen.

V. Die Grösse der Correlation der Muskelvariationen schwankt zwischen den Grenzen 0.0 und ± 0.6 mit dem mittleren Betrage ± 0.2. Das stimmt im absoluten Betrage mit der von Greenwood bestimmten Correlation der Gewichte der Eingeweide (Biometrica) überein. Die maximale Häufigkeit zeigen die Correlationen vom Betrage ± 0.1 und ± 3. Das ist aus der Tabelle zu ersehen. Die Correlationscoefficienten zeigen ein Überwiegen der positiven Vorzeichen. Das Übergewicht drückt sich in unserem Falle durch das Verhältnis 2 : 1 aus.

Grösse der Correlation.	0.0	0.1	0.2	0.3	0.4	0.6	*Summa.*
+	4	9	5	4	2	1	25
—	1	6	0	3	1	0	11
Anzahl	5	15	5	7	3	1	36

VI. Es lässt sich kein Überwiegen positiver Correlationen zwischen gleichsinnigen und negativer zwischen ungleichsinnigen Muskelvarietäten feststellen. Zwei Variationen sind gleichsinnig, wenn beide progressiv oder regressiv sind. Man spricht von ungleichsinnigen Variationen, wenn eine progressiv, die andere regressiv ist. Die eben angegebene Behauptung besitzt nur einen angenäherten Wert, da die Criterien zur Entscheidung über die Progressivität oder Regressivität einer Variation bis jetzt noch keine strenge Fassung haben. Durch Heranziehung der allgemeinen vergleichend-anatomischen Erfahrung lassen sich einige Variationen als progressiv, die anderen als regressiv bezeichnen, ohne dass man dadurch auf Widersprüche geführt wird.

Wir wollen das Auftreten des *M. peroneus* III und *M. teres minor* als progressive Erscheinungen bezeichnen, die der *MM. sternalis, pyramidalis, biceps brachii* III, *palmaris, psoas minor, plantaris* und der V. Sehne des *flexor digitorum pedis brevis* dagegen als regressiv annehmen. Die Correlationscoefficienten der Tabelle II (Plate VIII) lassen sich in zwei Gruppen zusammenfassen: —

1) Correlationscoefficienten zwischen gleichsinnigen Muskelvarietäten, sei es progressiven oder regressiven.

2) Correlationscoefficienten zwischen ungleichsinnigen Muskelvarietäten, d. h. zwischen progressiven und regressiven.

Jede Gruppe zerfällt in zwei Untergruppen je nach den Vorzeichen, die sie führt. So bekommen wir folgende Tabelle: —

	Gleichsinnig.	*Ungleichsinnig.*
+	12	8
—	5	3

Aus der Tafel ist ersichtlich, dass hier von keinem Überwiegen des + oder — Zeichens bei Correlationen zwischengleichsinnigen und ungleichsinnigen Varietäten gesprochen werden kann.

Der Zusammenhang zwischen den gleichsinnigen Correlationen und den positiven Vorzeichen des Coefficienten, wie auch des negativen mit den ungleichsinnigen kann durch Heranziehung des Correlationscoefficienten als Mass des Zusammenhangs gemessen werden. In diesem Fall ist der Coefficient, $r = -0.039 \pm 0.095$, 2.5 mal kleiner als der wahrscheinliche Fehler des Resultats. Das zeigt, dass man von keinem Zusammenhang sprechen darf.

VII. Zwischen den Varietäten der einzelnen Extremitäten lassen sich keine höheren Correlationen beobachten.

VIII. Die Grösse der Symmetrie der Muskelvarietäten schwankt zwischen den Grenzen + 0.6 und + 1.0 mit dem mittleren Betrage + 0.8. Zum Masse der Symmetrie wurde der Correlationscoefficient des Auftretens der Varietät links und rechts verwendet.

IX. Die Symmetrie der Muskelvarietäten steht im umgekehrten Verhältnis zur funktionellen Inanspruchnahme des

Muskels. So zeigen die Muskeln *plantaris, piriformis, biceps, brachii* III die grösste, *sternalis* und *psoas minor* die kleinste Asymmetrie. Das könnte sich vielleicht darauf zurückführen lassen, dass die asymmetrische funktionelle Inanspruchnahme der Muskeln der Variabilität nicht im gleichen Grade in den beiden Körperhälften entgegenwirkt.

Die in dieser Arbeit constatirten Tatbestände erlauben die Kritik einer alten, von den meisten Vertretern der Wissenschaft wohl verlassenen Ansicht. Diese alte Ansicht äusserte sich in der Annahme, dass sowohl einzelne Individuen wie auch ganze Rassen und Species Stufen der phylogenetischen Reihe demonstriren. Aus dieser Annahme lassen sich die Erwartungen folgern, dass

1) Sowohl Individuen wie auch Rassen und Species sich inbezug auf den Grad ihres Progressismus unterscheiden, und

2) Die gleichsinnigen Varietäten positive und die ungleichsinnigen negative Correlationen zeigen.

Die erste Erwartung lässt sich ohne weiteres aus der Anschauung der angenommenen phylogenetischen Entwicklungsreihe ableiten.

Die zweite Erwartung inbezug auf die Regelmässigkeiten der Correlationsvorzeichen verlangt eine einfache Überlegung. Aus der Annahme, dass einzelne Individuen und ganze Rassen Entwicklungsstufen demonstriren, folgt, dass in progressiven Individuen und Rassen progressive, in regressiven regressive Varietäten zusammentreffen werden. Da aber die ausgesprochene Tendenz des Zusammentreffens sowohl der progressiven Varietäten unter einander wie auch der regressiven als eine positive Correlation definirt worden ist, so folgt, dass zwischen gleichsinnigen Varietäten positive Correlationen zu erwarten sind. Das häufigere Zusammentreffen der gleichsinnigen Variationen, falls es überhaupt eintritt, muss ein selteneres Zusammentreffen der progressiven mit den regressiven Varietäten zur Folge haben. Das wurde aber als eine negative Correlation definirt. So sind die zwei oben ausgesprochenen Erwartungen durch die gemachte Annahme begründet. Wenn man aber zeigen kann, dass die Tatsachen den Erwartungen nicht entsprechen, so fällt damit die Annahme samt allen aus ihr gezogenen Schlüssen dahin. Das geschieht, wenn wir zeigen, dass entweder zwischen den gleichsinnigen Variationen nicht immer positive Correlationen bestehen, oder dass zwischen ungleichsinnigen nicht immer negative auftreten.

Das wurde oben tatsächlich gezeigt. Die Schwierigkeit bestand aber im Unterscheiden der progressiven und regressiven Varietäten. Diese Schwierigkeit kann aber umgangen werden. Die Notwendigkeit der Unterscheidung fällt aus, falls man zeigt, dass bei keiner Einteilung der Varietäten sich zwei Gruppen bilden lassen, die nur je positive und je negative Correlationen zeigen. Dann sind die zu erwartenden Gesetzmässigkeiten unmöglich.

Ein Blick in die Correlationstafel II (Plate VIII) überzeugt uns, dass solche Gruppen nicht zu bilden sind.

Da die erwarteten Gesetzmässigkeiten inbezug auf die Vorzeichen nicht eintreten, besteht also die Annahme, dass die Individuen einzelne Entwicklungsstufen repräsentiren, damit nicht. Es fällt auch der daraus gezogene Schluss, dass man die Individuen inbezug auf den Grad ihres Progressismus unterscheiden kann. Wenn wir uns unser Beobachtungsmaterial aus Vertretern verschiedener sich allerdings nahe stehender Typen zusammengesetzt denken, was in diesem Falle sehr wahrscheinlich ist, so gilt diese Beweisführung nicht nur für einzelne Individuen, sondern auch für ganze Typen.

Es wird also in der vorliegenden Arbeit der Beweis erbracht, dass sowohl Individuen als auch Typen Combinationen von Merkmalen sind, die sich aber in eine aufsteigende Reihe nicht ordnen lassen.

Muskelvarietät	M. sternal
M. sternalis (Auftreten)	– –
M. pyramidalis (Fehlen)	– –
M. teres minor (Fehlen)	– –
M. biceps brachii, III. Kopf an brachi	– –
M. palmaris longu (Fehlen)	– –
M. psoas minor (Fehlen)	– –
M. piriformis (Durchbohrung	– –
M. plantaris (Fehlen)	– –
M. peronaeus III (Fehlen)	– –
M. flexor dig. ped. b (Fehlen)	– –

NORTH AFRICAN JEWS.

BY MAURICE FISHBERG.

A MOST noteworthy phenomenon was observed in the study of the physical anthropology of the Jews in Europe. Contrary to the generally accepted theory that they have maintained their racial purity for centuries, research by modern anthropological methods has shown that the physical type of the Jews bears a striking resemblance to the ethnic types encountered in the indigenous races and peoples among whom they happen to live. Moreover, only a small proportion of the European Jews display the traits which are said to be characteristic of the other Semitic races living to-day in Asia and Africa. The Jews living among Slavonians resemble the Slavonians, those living among Teutons display some traits characteristic of the Teutons, and so forth. After investigating the problems of the physical type of the Jews in Europe and arriving at the above conclusion,[1] the author thought that it would be of interest to investigate the Jews who have never come in intimate contact with Europeans, preferably those who have lived for centuries among non-Jewish Semitic races, in order to elicit whether they are of the same type as those living in Europe, or whether they approach the type of the Semites among whom they live.

The opportunity to obtain measurements of such Jews presented itself when I visited Algeria and Tunis in the summer of 1905. In the schools of the Alliance Israélite Universelle in Algiers, Constantine, and Tunis, I obtained some measurements of 606 male children between the ages of 5 and 16; and also of 46 adults, natives of Morocco, Algeria, and Tunis. These latter, added to the 31 immigrants from these countries whom I measured in New York City, make a total of 77 adult male Jews from North Africa, on which I will report in this communication.

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[1] Physical Anthropology of the Eastern European Jews (Annals of the New York Academy of Sciences, Vol. xvi, Part ii, 1905).

The North African Jews appear to be taller, on the average, than their European co-religionists. The average height of the 77 Jews, according to their nativity, was as follows:—

Nativity.	*Average Stature.* mm.	*Number of Observations.*
Tunis	1667	9
Algiers	1673	25
Constantine	1675	31
Morocco	1646	12

The number of observations in each group is rather small for definite conclusions; but my impression, while looking at the Jews in the above-mentioned countries, was that they are taller than European Jews.

The appended table (I) shows the color of the hair of 606 Jewish children in North Africa.

TABLE I.

Color.	*Tunis.*	*Algeria.*	*Constantine.*	*Total.*
Black	46.09 %	31.37 %	34.11 %	40.26%
Brown	41.26	54.81	52.94	46.87
Chestnut	6.93	7.69	5.29	6.60
Light chestnut	2.11	3.85	2.94	2.64
Blond	3.31	1.92	4.12	3.30
Red	0.30	–	0.60	0.33
Number observed	332	104	170	606

These figures can be compared with the data on the Jewish school-children in Germany (Virchow), Austria (Schimmer), Hungary (Körösi), and Bulgaria (Wateff). The results are as follows:—

TABLE II.

Color of the Hair.	*Germany.*	*Austria.*	*Hungary.*	*Bulgaria.*	*North Africa.*
Fair	32.03%	27.00%	23.70%	22.35%	5.94%
Dark	55.85	72.30	76.30	76.65	93.73
Red	0.40	0.60	–	2.58	0.33
Number observed	75372	59808	3141	2828	606

The European Jewish children are thus shown to have nearly six times as many fair-haired as those in North Africa. Dark hair, which is found in 93.73% of Jewish children in North Africa, is only 55.85% in Germany. Among the adults the same prevails.

Table III.

Color of the Hair.	*Tunis.*	*Algiers.*	*Constantine.*	*Morocco.*	*Total North Africa.*
Dark	9	22	28	12	92.21%
Fair	–	2	2	–	5.19
Red	–	1	1	–	2.60
Number observed	9	25	31	12	77

The percentage of dark-haired Jews in North Africa is about the same as among children. Compared with European Jews, the North African are much darker. Fair hair is found to the extent of 20% among Galician Jews, although in Poland only 7% have been observed. Red hair is of about the same proportion in both groups of Jews.

The color of the eyes among the Jewish children in North Africa is given in the following table.

Table IV.

Color of the Eyes.	*Tunis.*	*Algeria.*	*Constantine.*	*Total.*
Black	31.03%	25.00%	32.35%	30.36%
Brown	44.90	53.85	49.41	47.69
Gray	16.84	17.31	11.77	15.51
Blue	7.23	3.85	6.47	6.44
Number observed	332	104	170	606

These figures can be compared with the figures obtained on Jewish children in Europe, as is done in the following table.

Table V.

Color of the Eyes.	*Germany.*	*Austria.*	*Hungary.*	*Bulgaria.*	*North Africa.*
Dark	51.99%	45.90%	57.50%	61.34%	78.05%
Gray	27.00	30.50	24.20	22.13	15.51
Blue	19.30	23.50	18.30	19.38	6.44

The proportion of blue eyes among the North African Jewish children is only 6.44% as against 23% among the Austrian, and 19% among the German and Bulgarian Jews. Gray eyes are also less frequent among the African Jews (only 15%), while dark eyes are encountered to the extent of 78%, much above the proportion found among the European Jewish children.

The adult Jews in North Africa also have darker eyes than their co-religionists in Europe, as can be seen from the following figures.

TABLE VI.

Color of the Eyes.	*Tunis.*	*Algiers.*	*Constantine.*	*Morocco.*	*Total North Africa.*
Dark	8	19	26	11	83.12%
Gray	1	5	4	1	14.29
Blue	–	1	1	–	2.60
Number observed	9	25	31	12	77

It is thus seen that only 17% have fair eyes (14.29% gray, and 2.60% blue). Among the eastern European Jews the proportion of fair-haired individuals is from about 40% to 50%, and even more in some countries.

The combination of traits in types was observed as follows among the 606 children:—

TABLE VII.

Type.	*Tunis.*	*Algiers.*	*Constantine.*	*Total.*
Dark	75.00%	76.92%	78.83%	76.40%
Fair	4.82	3.85	4.70	4.62
Mixed	20.18	19.23	16.47	18.98

The pure dark type is found to the extent of 76%, the fair type less than 5%, and the mixed type only 19%. Among the European Jews the dark type is rarely over 60%; the fair type, about 10% to 15%; and the mixed type, about 35%. The type of pigmentation is thus seen to have been preserved much purer among the Jews in North Africa than in Europe. Whether this is best explained by the fact that in Europe the blond type is more frequent, and in North Africa the indigenous population is dark, and, even if the Jews have intermarried with the natives, they have only acquired again dark traits, is an open question.

In the following table are given the results of head-measurements of 606 Jewish children between the ages of 6 and 16.

TABLE VIII.

Cephalic Index.	*Tunis.*	*Algiers.*	*Constantine.*	TOTAL.	
				Number.	*Per Cent.*
69	0.60	—	—	2	0.33
70	0.60	—	—	2	0.33
71	1.51	—	—	5	0.83
72	2.41	—	—	8	1.31
73	1.20	—	—	4	0.67
74	4.52	1.92	3.53	23	3.79
75	13.56	2.88	4.70	56	9.24
76	10.54	6.73	10.00	59	9.74
77	15.66	10.58	9.41	79	13.02
78	11.14	10.58	14.71	73	12.04
79	13.86	15.38	14.71	87	14.36
80	9.94	10.58	13.53	67	11.06
81	6.32	11.54	7.65	46	7.59
82	3.93	4.81	10.00	35	5.78
83	2.71	8.65	4.70	26	4.29
84	0.30	5.77	2.94	12	1.98
85	0.90	5.77	1.76	12	1.98
86	0.30	1.92	1.18	5	0.82
87	—	0.96	1.18	3	0.50
88	—	1.92	—	2	0.33

The average cephalic index was as follows:—

332 in Tunis	77.56
104 in Algiers	80.11
170 in Constantine	79.20
606 in North Africa	78.45

Compared with European Jews, the Jews in North Africa are more long-headed. This is best seen from Table IX, in which the figures are arranged in groups of index classes according to Deniker's scheme. The figures for the European Jews represent 2641 individuals reported by various observers, and compiled by the author in his work "Materials for the Physical Anthropology of the Eastern European Jews" (New York, 1905).

It is seen from these figures that the type of the head of the Jews in North Africa is dolichocephalic, while that of the European Jews is brachycephalic. Those in Tunis are more dolichocephalic than those in Constantine, and particularly

Algiers. 65% of all the children measured had indices less than 80, those from Tunis even 75%. The brachycephalic type, cephalic index 84 and more, is scarce among the North African Jews. Only 5.61% had this type of head, in Tunis even less (1.5%), while 32.89% of the eastern European Jews have this type of head-form. It is important to know whether the fact that the Jews in Algeria approach more nearly the type of the Jews in Europe (cephalic index 80.11, dolichocephaly only 4.80%, and brachycephaly 16.34%) cannot be explained by large numbers of European Jews who live in Algiers, and have thus intermarried with the indigenous Jews. But in Tunis there are also living many Jews from Europe, particularly Italian (whose cephalic index is 82 according to Lombroso and Livi), but still they are dolichocephalic. In fact, all the Jews I have asked in North Africa have told me that intermarriage between the indigenous and European Jews is very rare.

TABLE IX.

Type of Head-Form.	*Tunis.*	*Algiers.*	*Constantine.*	*North African Jews.*	*European Jews.*
Hyperdolichocephalic (–76).....	24.40	4.80	8.32	16.51	2.41
Dolichocephalic (76–77)	26.10	17.31	19.41	22.76	6.24
Subdolichocephalic (78–79)	25.00	25.96	29.42	26.40	14.23
Mesocephalic (80–81)	16.26	22.12	21.18	18.65	24.50
Subbrachycephalic (82–83)	6.64	13.46	14.70	10.07	24.61
Brachycephalic (84–85)	1.20	11.54	4.70	3.96	17.19
Hyperbrachycephalic (85 +).........	0.30	4.80	2.36	1.65	10.81

I am only able to report measurements of 77 adult male Jews from North Africa. The absolute head-measurements are as follows.

TABLE X.

Nativity.	HEAD.		*Average Cephalic Index.*
	Width.	*Length.*	
9 in Tunis.................	150	196	76.11
25 in Algiers................	149	189	79.12
31 in Constantine............	150	184	79.06
12 in Morocco...............	145	190	75.92
77 total in North Africa.....	149	188	78.24

Dividing the figures into index classes, the following are the results: —

TABLE XI.

Type of Head-Form.	*Tunis.*	*Algiers.*	*Constantine.*	*Morocco.*	*North African Jews.*
-76	4	5	4	7	25.97%
76-77	3	5	9	2	24.67
78-79	1	3	9	2	19.48
80-81	1	5	4	-	13.00
82-83	-	4	3	-	9.09
84-85	-	3	1	1	6.49
86 +	-	-	1	-	1.30
Total number.....	9	25	31	12	77

The average cephalic index is 78.24, about the same as in the children. The Morocco Jews are distinctly long-headed, with an index of 75.92. Next to these are those from Tunis, with 76.11; while the Jews in Algiers and Constantine are more broad-headed, nearly approaching the type of their European co-religionists. The distribution of the various classes of indices is interesting. Over 50% of the individuals measured had indices less than 78, while among the European Jews about 8% of persons are encountered with this type of head. On the other hand, of brachycephalic heads, with indices over 84, only 7.79% are found among the North African Jews, while among their co-religionists in Europe we find 32.89% with such heads,—nearly four times as many.

The height and width of the face and the facial index are given on the next page.

	Face.		Facial Index.
	Height.	*Width.*	
Constantine	121	137	88.32
Tunis	122	139	88.77
Algiers	120	135	88.89
Morocco	120	134	89.55
All North African Jews	121	136	88.97

The measurements of the nose are the following: —

	Nose.		Nasal Index.
	Height.	*Width.*	
Constantine	56	35	62.50
Tunis	54	33	61.11
Algiers	57	36	63.16
Morocco	55	34	61.81
All North African Jews	56	34	60.71

The nose is seen from these figures to be somewhat longer and narrower than in European Jews. It is a striking fact, however, that while the idea that the Jews have a very large number of hooked noses is erroneous as regards Europe, only from about 10% to 15% having such noses, among the North African Jews such noses are still more rarely encountered. Only 5 of the 77 had such form of nose. While walking around the Jewish district in Algiers, Constantine, and Tunis, I was also struck with the rarity of hooked noses.

When compared with the indigenous races of North Africa, it is found that the Jews approach nearer the type of the Berbers, Arabs, Kabyls, etc., than that of their co-religionists in Europe. While these races are essentially brunette, yet a considerable blond element was found among them. Tissot states that about one-third of the population of Morocco is blond, but he gives no definite figures. Among 400 Turcos at Bona, 5 were found with fair, and 20 with chestnut hair.[1] Bertholon reports that over 2% of the population northwest of Tunis had blond and red hair, 9% intermediate or chestnut tints, and 88.95% dark.[2] The 6% of fair-haired Jews in North Africa are thus seen to be shared also by the non-Jewish population of this region. On the other hand, the Jews who live in Europe among fairer races have about six times as many blonds as those in North Africa.

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[1] Hartman, Die Nigritier, p. 627.

[2] Bertholon, Exploration Anthropol. de la Khoumirie (Bull. de Géogr. hist. et descript., Ministère de l'instit. publ., Paris, 1891, pp. 179–224).

From studies of the Berbers, Arabs, and Kabyls made by Topinard, Colignon, Bertholon, and others, it was established that they are dolichocephalic, their average cephalic index ranging between 70 and 77, according to the tribe. The Jews, as was evident from the measurements reported above, are also dolichocephalic,—a trait not observed in European Jews. Of all the thousands of Jews in Europe of whom measurements were obtained, less than 5% were dolichocephalic, and over 75% had a cephalic index over 80. In North Africa, on the other hand, over 65% of all the children measured had heads with an index less than 80, thus being far removed from the Jews in Europe. Taking this in connection with the Jews who live among extremely brachycephalic races, like those in the Caucasus, the difference in the types of Jews in various countries is striking. In Caucasia Pantukhof, Erkert, and others have found an average cephalic index of 87 among the indigenous Jews. That this brachycephaly is not necessarily due to external conditions, such as climate, altitude, etc., is attested by the fact that the Kurds, Tats, and Persians who live in the same region are dolichocephalic; and the Russians, who have not intermarried with the indigenous races, have also preserved their cranial type.

The North African Jews, in addition to their distinct cranial type, also display facial features not met with among the Jews in Europe. I was often unable to distinguish a Jew from a Moslem by the physiognomy, dress, deportment, etc.

The alleged uniformity of the physical type of the Jews in various countries is conclusively disproved. We find the widest range of variation when we study Jews in different countries. There is more difference between the Caucasian and North African Jews than there is between Russians and Germans, although the latter two peoples have no claim to any special blood relationship. Between these two extreme types of head-form are the European Jews, displaying cranial types ranging, on the average, between 80 and 84, according to the country and peoples among which they are located.

THE YOKUTS AND YUKI LANGUAGES.

BY A. L. KROEBER.

IN a paper opening the "American Anthropologist" for 1903, the numerous distinct native linguistic families of California were classified into morphological groups. Three such groups were determined,— one, territorially of small extent, in the northwestern part of the State; a second, also limited in area and in the number of families belonging to it, in the southwest; and a third occupying the greater part of the State, especially the central region, and comprising the majority of the families. This last typically Californian or Central group includes Maidu, Wintun, Pomo, Yuki, Costanoan, Esselen, and Yokuts; while Shasta-Achomawi, Yana, Washo, Miwok, and Shoshonean all show more or less affinity to it, though differing each in certain respects. This morphological classification cannot in any way supersede the standard method of classification, based entirely on words, which must remain in use in determining the genetic relationship of languages. The Californian families, established upon lexical resemblances, consist of bodies of languages unquestionably related in origin. The morphological groups comprise these families treated as units, and express degrees of structural similarity without any implication as to a common origin of the families. In one respect the linguistic families correspond to biological species, and the morphological groups of families to genera. Like a species, the linguistic family is, at least practically, definitely separated from all others, and distinctly determinable. Like the genus, the morphological group is a larger indefinite body, whose constitution is dependent upon individual judgment.

The purpose of the present paper is to compare two families that are members of the same morphological group, the Central group of California. The families chosen are Yuki and Yokuts, which are not in territorial contact, and which, on the evidence of their vocabularies, must in the present stage of knowledge be considered as unquestionably distinct and showing no signs of common origin. The Yuki are in northern California, in the Coast Range and in part on the coast. Their principal territory is on the head waters of Eel River. The dialect representing the family in the present discussion is that of the division popularly known as Yuki, whose territory was in and about Round Valley. The Yokuts were in the interior of south-central California, in the southern end of the San Joaquin Valley. The dialect used in the present comparison is the Yaudanchi, spoken originally on Tule River.

Both stocks of people possess detached branches that have approached each other geographically. The so-called Wappo division of the Yuki extended nearly to Napa at the head of tide-water on the north side of San Francisco Bay. The Yokuts Chulamni or Cholovone occupied the country about Stockton in the tide-water region at the southeastern end of the bay. There is no evidence of intercourse or contact between the Wappo and the Chulamni. The language of the Chulamni shows them undoubtedly to have been a very recent offshoot from the main body of the Yokuts.

PHONETICS.

The phonetic systems of the two families are closely similar. The parallels are strikingly shown in the table on p. 66. Both possess five series of consonant sounds,—a guttural, a palatal, two "dental," and a labial. Of the two "dental" series, one is formed palatally or post-alveolarly, the other interdentally. Both languages show in these five series both simple and aspirated surds. They differ in that Yokuts possesses also sonants, which Yuki lacks. They agree in lacking spirants in all five series, except that Yokuts possesses surd and sonant guttural spirants. In both languages only the interdental and labial series are represented by nasals. The nasal of the guttural series occurs in Yuki only through modification of *n̖* or *m* by a following *k*, and in Yokuts only in that division of the family to which the Yaudanchi dialect belongs. The majority of Yokuts dialects show no guttural nasal. Both languages possess either *s* and *sh* or a sound intermediate between *s* and *sh,* with the addition in Yokuts of corresponding sonants. Both lack *r,* but possess *l,* exceptionally modified in the Yaudanchi dialect to *d;* and both have *h, y,* and *w.* In vowels, *u, o, a, e,* and *i* agree in both families, *o* and *e* being open, with only the difference that Yuki lacks *e,* but adds nasal a^n. Each language possesses also a second series of vowels, though these differ in character. This second series consists, in the one case, of aspirated vowels, which are well devéloped and frequent in Yuki, but sporadic in Yokuts; in the other, of modified or impure vowels in Yokuts, among them open *ö* and *ü* corresponding to *e* and *i.* These impure vowels are without parallel in Yuki, but are also lacking in the great majority of Yokuts dialects, occurring only in the small division of the family to which Yaudanchi belongs. When Yokuts sounds peculiar to the Yaudanchi dialectic group are omitted, it is accordingly seen that the phonetic constituents of the two families are identical, except for the presence in Yokuts of sonants and of guttural spirants, the presence of *e* in Yokuts and of nasal a^n in Yuki, and for the development of aspirated vowel-sounds in Yuki.

YUKI.

u	o	a	a^n	i			
u'	o'	a'	a^n'	i'			
k	k'				(ñ)		
t·	t·'					s-c	
tc	tc'						
t	t'				n		l
p	p'				m		
		h,	y,	w			

YOKUTS.

u	o	a	e	i				
[*u*	*o*	*a*	*ö*	*ü*]				
k	k'	g	x	g'	[ñ]			
tc	tc'	dj						
t·	t·'	d·				s-c	z-j	
t	t'	d			n			(l)
p	p'	b			m			
		h,	y,	w				

In both families all sounds of the language occur both initially and finally, if the modification of *h* to an aspiration, of *y* to *i,* and of *w* to *u,* are included. In both families there are no combinations of three consonants. In both there occurs no combination of two consonants, either initially or finally. In both there do not seem to exist in stems any combinations of consonants whatever: this is certain of Yuki, and exceedingly probable of Yokuts. Both languages are probably without radical diphthongs. In both almost all diphthongs can be explained as directly due to *y* or *w.* In both languages consonants are but infrequently modified by juxtaposed components of the same word. In one respect the two families differ strikingly. Yuki is without vocalic harmony or any system of vocalic mutations in stems. Yokuts possesses vocalic harmony in well-developed form. This harmony is found operative in part in affixes, but occurs primarily in stems under the influence of affixes, and is sometimes, if not always, connected with change of the word accent. The most prominent peculiarity of the vocalic harmony of Yokuts is the fact that it assumes entirely different forms, not so much before suffixes of different phonetic content, as according to the part of speech to which the stem belongs and according to the grammatical significance of the suffix. Identical suffixes of different meaning cause diverse changes. *Nibetc* in the objective becomes *nibetc-i,* in the plural *nebatc-i.* In the verb the stem-vowels change from *o* to *u,* from *u* to *o,* from *e* to *i,* from *i* to *e,* from *ö* to *ü,* and from *ü* to *ö,* before suffixes containing an *a,* while suffixes containing an *i* do not modify the stem. In the numeral, however, the same change is produced only by an *i*-suffix. In the noun the last vowel of the stem becomes respectively *a* or *i,* according as the suffix of the plural is *-i* or *-a.* Thus the laws of vocalic harmony in Yokuts are not only elaborate, but are psychological or grammatically artificial much more than physiological or purely phonetic.

It will be seen, that, except for the presence of the Yokuts vocalic harmony, the phonetic systems of the two languages are as nearly identical, both in their constituents and in their use and combination, as they well could be in two entirely distinct families.

ETYMOLOGY.

The radical elements composing the two languages show considerable difference. In Yuki they are predominantly monosyllabic, while Yokuts shows a well-marked polysyllabic tendency. In both languages verbal stems are more frequently monosyllabic than are noun-stems. In Yuki nine-tenths or more of the verbal stems are monosyllabic, and most of the remainder doubtful. In Yokuts about two-thirds of the verbal stems are monosyllabic, the remainder almost certainly dissyllabic. Of Yuki nouns, the great majority are either monosyllabic or clearly derivable from monosyllabic elements. In most polysyllabic Yuki nouns, composition or derivation is certain, and the monosyllabic radicals can be determined, although their meaning is frequently unknown. In Yokuts very few nouns are monosyllabic. Nine-tenths or more show from two to four syllables. Almost all give no evidence of being derived. A few derivative affixes are determinable, but even when subtracted they leave the stems polysyllabic.

In Yuki the monosyllabic constituents of the language are considerably combined into fairly long compact words, both nominal and verbal, of from two to four and five and six syllables. While these words are phonetic units, their elements, both consonantal and vocalic, are almost entirely unchanged. In Yokuts, on the other hand, stems are not combined with each other; and when they are united with suffixes, vocalic changes are frequently produced, although consonants are not appreciably affected. Consequently the structure of Yuki words is often comparatively elaborate, but is always clear phonetically, even if the meaning of the several component stems is unknown. In Yokuts, on the other hand, the structure of words is almost always quite simple, but is often not transparent on account of the vocalic changes caused by the combination of stem and suffix.

In regard to composition as distinguished from derivation, that is to say, the union of stems that can occur independently as distinct words, the two families differ. Yokuts is practically without composition, either of nouns with nouns, or of nouns with verbs and adjectives. Yuki, on the other hand, freely combines its stems of all parts of speech; and such composite words, while not strikingly frequent, are found in considerable numbers. In the composition of two nouns, the modifying stem or regimen precedes, the regent follows. When a noun is combined with a verb or an adjective, it precedes these stems, although the latter are the modifiers and the noun is the regent or element which determines the nature of the compound.

In Yokuts there is very little etymological derivation from stems by means of affixes, and most of the deriving affixes are of indefinite or indeterminable meaning. In Yuki derivation is more developed, not only in the number of affixes found, but in the greater frequency of their occurrence. The affixes are also generally of a more definite significance, such as *-mo'l* or *-o'l,* denoting the instrument or agent.

Yokuts shows etymological reduplication to some extent, Yuki scarcely at all. Yokuts also possesses a considerable number of onomatopoetic stems, especially to denote animals. In Yuki this feature is less prominent. Yokuts seems to have both borrowed a number of words from neighboring languages and lent to them. Yuki, however, shows scarcely a trace of either such borrowing or lending.

GRAMMATICAL STRUCTURE.

Grammatical structure is indicated in both families almost entirely by affixes, to which in Yokuts must be added the vocalic harmony induced by the affixes. The relative position of words in the sentence is of no grammatical moment. Both languages lack prefixes and infixes entirely. The grammatical relations of both are therefore expressed by suffixes alone. On the whole, the classes of grammatical ideas expressed by these suffixes correspond quite closely in the two families. In the extent of their grammatical suffixation the two languages, however, differ. Yuki is considerably the richer, between seventy and eighty grammatical suffixes having been determined, with the prospect of the existence of a number of others; whereas in Yokuts the total number found is barely over thirty. The numerical preponderance is maintained in Yuki in all classes of suffixes.

The suffixes of both families may be grouped in four classes; the first consisting of suffixes expressing number and gender, and of suffixes of adjectives, demonstratives, and numerals; the second consisting of case-suffixes; the third, of formative verbal suffixes; and the fourth, of grammatical verbal suffixes.

Among suffixes of the first class, both languages show a plural *-i,* replaced sometimes by *-a.* Both possess a rarer diminutive, sometimes approaching a plural in meaning, with the form *-itc* or *-hatc.* The other miscellaneous suffixes of this class number eight in Yokuts, and ten in Yuki.

In the second class, comprising suffixes of case and location, the two languages run closely parallel for a time; but then Yokuts ceases, while Yuki continues in a rich development. Both languages possess suffixes expressing the objective, possessive, instrumental, locative, and ablative. The phonetic forms of these case-suffixes are quite closely analogous, and in some cases even similar or identical. Besides these five forms, Yokuts, however, shows no trace of any other suffixes of case, except one peculiar to objective pronouns. Yuki, however, has not only three such suffixes found only on pronouns, but a considerable number of others, all of special locative significance, such as an inessive, superessive, and juxtapositive. Such ideas are in Yokuts expressed either by the one indefinite locative or by prepositional words of adverbial or substantival origin. The Yokuts case-suffixes, accordingly, are either purely syntactical or approach this character. The Yuki suffixes, while in part purely syntactical, comprise many of concrete and comparatively ungrammatical significance. The total number found in Yokuts is six, in Yuki seventeen.

CASE.	YOKUTS.	YUKI.
Objective	**-a, -i**	**-a**
Possessive	**-in**	**-at**
Instrumental	**-ñ, -ñi**	**-ok; -a**
Locative	**-u**	**-ki, -k, -i**
Ablative	**-nit**	**-wit; -pis**

A similar disproportion between the two languages is found in the third class, the formative or semi-derivative suffixes of verbs. Yokuts shows only six, — a causative, frequentative, desiderative, benefactive, intransitive, and reflexive. These are all of specific meaning, and are added to stems only when there is a definite intent of expressing the meaning which they bear. In consequence these formative suffixes are not particularly abundant in Yokuts. In Yuki twenty-three suffixes of this class have been determined, and there are very probably many others. The benefactive of Yokuts is lacking. The desiderative finds an equivalent in a conative. The reflexive is paralleled, the intransitive paralleled and duplicated by a contrasting suffix expressing transitiveness, or voluntary as opposed to involuntary action. In place of the Yokuts causative, Yuki shows three suffixes of this meaning, and in place of the Yokuts frequentative, four suffixes of this or a contrasting opposite meaning. In addition to these suffixes, Yuki shows a potential, similative, two inchoatives, and eight other suffixes, most of which refer, though with vague significance, to motion or action. Throughout, the Yuki suffixes, although so much more numerous, appear to be of less precise meaning than those of Yokuts, except in the cases where they occur in pairs expressing opposite ideas. On the other hand, the Yuki suffixes are not only altogether more numerous, but are more abundantly used, most verbs in connected discourse showing at least one of this class of formative suffixes.

The fourth class, consisting of the more distinctly grammatical suffixes of verbs, is also more numerously represented in Yuki by a proportion of nineteen to eight, but the range of categories of meaning to which the suffixes belong is strikingly similar in the two languages. The verbal suffixes of neither express either person or number. The grammatical suffixes of verbs are thus restricted in both languages to those indicating mode or tense. Of distinctly temporal suffixes, Yokuts has four, Yuki six. Yokuts possesses a pure passive, which is without equivalent in Yuki. Yuki shows two quotatives, lacking in Yokuts, and a negative and an interrogative suffix, which occur in addition to negative and interrogative particles. Yokuts uses only particles to express the negative and interrogative. Of participial, relative, and noun-forming suffixes, Yokuts possesses only three, Yuki nine. Yokuts is without any distinctly relative suffixes with a subordinating significance about equivalent to " he who;" whereas in Yuki such suffixes, in part directly related to the demonstrative stems, are not only well-developed, but of frequent use, and of importance in the structure of the sentence.

Both families have in common the employment of the locative case-suffix on verbs to form dependent clauses, usually with a temporal significance, " at the going " or " at his going " meaning " when he went."

The imperative is in Yuki expressed in some verbs by the stem, in others by a suffix *-a*. In Yokuts, Yaudanchi and the dialects most nearly related to it indicate the imperative by the stem without a suffix, while the remaining dialects of the family use the suffix *-ka*.

USES OF PARTS OF SPEECH AND THEIR AFFIXES.

Nouns.

In Yokuts the use of the plural suffix is restricted to nouns denoting human beings or personified animals and objects. In Yuki the phonetically identical plural suffix is restricted to nouns denoting animate beings, among which plants are probably included.

The objective suffix is in Yuki added only to nouns denoting persons, or objects conceived of as persons. In Yokuts many nouns never take the objective suffix; but this is apparently due to their phonetic form, and not to their meaning, for they comprise words denoting persons, animals, and inanimate objects.

In both languages the possessive suffix of nouns and demonstratives is freely used on all words of these classes. The possessive relation between two nouns is expressed by means of this case-suffix, and not by the possessive pronoun.

Personal Pronouns.

In one of the most important structural considerations, at least in the case of American languages, the two families are absolutely in accord: their entire failure to employ the personal pronouns or pronominal elements as a syntactical means or in affix form. The only qualification that must be made of this statement is that terms of relationship, but only these, are in Yuki sometimes preceded by abbreviated or modified pronominal forms, of which it is not clear whether they are prefixes or preposed particles. In both families the personal pronouns are syntactically the full equivalent of substantives, and are no more used as affixes, or in abbreviated form as parts of words, than are nouns; that is to say, the system of pronominal incorporation characterizing so many American languages, and so highly developed in some of them, is utterly lacking in both these families.

The personal pronouns of the two languages are alike in being restricted to the first and second person, and in showing in the plural of the first person both inclusive and exclusive forms, the inclusive being derived from the stem of the second person. Yokuts does possess in the Yaudanchi dialect a possessive pronoun of the third person, and in other dialects also subjective and objective plurals of the third person. These, however, are shown by their forms to be almost certainly only formations by analogy from the stems of the second person. No Yokuts or Yuki dialect has any word equivalent to "he" or "him;" the pronoun is omitted or replaced by the demonstrative "that." Yokuts shows a dual developed parallel with the plural. This is without equivalent in Yuki. In Yokuts it is restricted entirely to the personal pronouns and demonstratives. Pronominal forms indicating oblique case-relations or plurality are derived in Yuki mostly from the singular subjective stems by means of the case and number suffixes characteristic of nouns, or are expressed by stems radically different from the singular subjective stems. In Yokuts these forms are all clearly derived from the singular subjective stems, but more largely by suffixes confined in their use to the pronoun, and with a far-reaching influence of analogy which has much modified and systematized the forms as a whole.

		Yokuts.			Yuki.		
		Subj.	*Obj.*	*Poss.*	*Subj.*	*Obj.*	*Poss.*
Sing.	1	na	nan	nim	a^{n}p-el	ii	it-in
	2	ma	mam	min	mi'	mis	mit
	3	—	—	an	—	—	—
Dual	1 ex	nak	nanak	nimgin	—	—	—
	1 in	mak	?	magin	—	—	—
	2	mak	mamak	mingin	—	—	—
	3	—	—	angin	—	—	—
Plu.	1 ex	nan	nanunwa	nimik	mi	miya	miat
	1 in	mai	?	main	us	usa	usat
	2	man	mamunwa	minik	mos	mosiya	mosiyat
	3	—	—	anik	—	—	—

Demonstratives.

Both families accord no great importance to demonstratives. The precise indication of distance, visibility, or relation to person, characterizing the demonstratives of some American languages, is not found. The demonstratives are considerably used as words, but are not employed as a syntactical means, except for their occurrence in relative suffixes of verbs in Yuki. Relative relations are also expressed by demonstratives in Yokuts, but only by the independent demonstratives; whereas Yuki employs the demonstrative stems for this purpose as verb-suffixes.

The demonstrative stems in Yokuts number three, or in most dialects four, in Yuki only two. The distinction between the two Yuki stems is one of distance. The stem indicating greater distance, and therefore greater indefiniteness, *ki,* is the more freely used, often with a meaning approaching that of the English article. In Yokuts the four demonstratives are of two classes. One consists of a stem *ta,* which is primarily indicative of reference and is rather indefinite as to location, although at times it specifically indicates distance and invisibility. This stem, like the Yuki stem indicating greater distance, is used as the practical equivalent of the English article and the English personal pronoun of the third person singular. The demonstratives of the second class in Yokuts show stems apparently going back to initial *k,* and indicate three degrees of distance, sometimes brought into relation with the three personal pronouns. The forms of the demonstratives in the two families are strikingly similar. Yuki uses *ka* for " this," *ki* for "that." Yokuts uses *ta* for "that" indefinite, *ka* for "that," *xi* and *xe* (replaced in other dialects by *ki* and *hi*) for "this."

Yuki indicates a reflexive, such as " he himself," by the addition of a suffix *-p* to the demonstrative. Yokuts does not show this feature. Yuki, in forming the plural of its demonstratives, adds to the stem the suffix *-mac-;* Yokuts, a similar suffix *-c-*. In both languages the endings expressive of case and number are those of the noun, with apparently little variation.

Numerals.

The numeral systems of the two languages are radically different, that of Yokuts being strictly decimal, and the numbers up to ten unanalyzable; that of Yuki quaternary, with only the forms up to three showing true numeral stems, all the terms above being both descriptive and composite.

Connectives.

In the use of connectives the two languages are different. Yokuts shows no introductory or connective particles, other than a few that are absolutely without syntactical significance, like English "and" and "then." Yuki, however, has several introductory particles indicating with some fineness the relationship of consecutive sentences, not only as regards the time or state of the actions expressed, but as regards the grammatical subject. The particle *sa*^{n}- indicates that the subject of the sentence which it heads is the same as that of the preceding sentence; the particle *si*-, that the subject is different. These two particles, which are constantly used in Yuki, do much to make up for the lack in this language of personal pronouns of the third person or demonstrative elements of accurate denotation. These two particles are also combined with suffixed elements indicating the relation in time or otherwise of the actions or states expressed by two consecutive sentences: -*k*- expresses contemporaneous action; -*m* and -*kit*·, that the action of the preceding sentence is completed; -*ka*^{n}, that it is continued. There are others whose meaning is not clear. A Yuki particle *ii* is abundantly interspersed, either as an affix to the connectives just described, or as an independent word, in statements made on the information of others or not based on actual knowledge or experience; in other words, it expresses a dubitative. Yokuts lacks this expression.

Verbs.

The verbs of Yokuts and Yuki are primarily characterized by the entire lack of either pronominal or nominal incorporation, whether for subject or object. Number is also not expressed by any affix or modification of the verb. Reduplication to express iteration occurs in Yokuts. In Yuki it is less frequent or lacking. In both languages the formative or semi-derivative suffixes, such as intransitives and causatives, precede the modo-temporal or more distinctively grammatical suffixes, such as preterites and participles. In neither language are there any affixes indicating the instrument or means of action expressed by the verb-stem. As stated before, the Yokuts suffixes are fewer than those of Yuki, but more specific and used only when necessary. Those of Yuki, being more indefinite in meaning, are more frequently used, often through habitual idiom rather than from intent to express a specific significance. A peculiarity of Yuki is that a large class of verbs, including all of mental action besides many others, provide their logical subject with the objective suffix, while the object receives the possessive suffix. It would appear that this construction is an impersonal one, equivalent to English "methinks." The distinction between impersonal or unintentional action, and action which is voluntary, is grammatically deeply impressed upon Yuki, but finds no parallel in Yokuts. Perhaps the commonest formative verb-suffixes in Yuki are *-t-*, expressing intransitive, involuntary, or automatic action; and *-tl-*, expressing transitive, voluntary, or causative action. These suffixes can be added practically to any verb-stem, and where they are contrasted the involuntary suffix *-t-* usually causes the subject of the verb to assume the objective form: *a*^{n}*p o'-tl-ik,* "I spew;" *ii o'-t-ik,* "I vomit."

Both languages are free from a feature characterizing Athapascan, Shoshonean, and other families: the use of radically unrelated stems to express the same action in the singular and plural. A single instance has been found in each language: *taut·a* and *cox,* "to die or kill," in Yokuts; *nam* and *pin,* "to lie or lay," in Yuki; but it seems probable that both cases are due to a different connotation of the singular and plural stems rather than that the different stems are directly indicative of number.

SENTENCE STRUCTURE.

In the building-up of the sentence from words, the two families show many discrepancies. The order of words, while not definitely fixed, and entirely a matter of idiom and custom and not of syntax, differs quite thoroughly. In Yokuts the adjective precedes its noun, in Yuki it follows. Yokuts tends to place the verb at the head of the sentence, Yuki at the end. The order of words in the sentence in Yokuts is most frequently verb, subject, object; in Yuki, subject, object, verb, or subject, verb, object. In both, the relative order of the pronouns is idiomatically fixed, the subject preceding the object. The languages agree in opening the sentence with particles. In Yokuts the interrogative, negative, and similar particles stand at the head, as do interrogative stems. When such are lacking, there is usually a simple particle about equivalent to " then " in meaning. In Yuki the introductory and connective particles definitely referring to the preceding sentence are almost invariably at the head.

The composition of the sentence is not very similar. The sentences of Yokuts are simple. There are few dependent or subordinate clauses, and most of these neither long nor involved. On the other hand, the majority of Yuki sentences in narrative or connected discourse contain one or more dependent participial or relative clauses, and these may be subordinated one to the other.

SPECIMEN TEXTS.

Yokuts.

g‘og‘o-c	ta-u	limik	g‘og‘o-c	an	yiwin	hay-ana	g‘og‘o-c	ta-u
Live-did	that-at	Hawk.	Live-did	his	wife	fly-er (=Duck)	Live-did	that-at

kaiu	yet-au	ta-ñ	g‘og‘o-c	tin	ta-u	cupe-in	ama
Coyote	one-at (= with)	that-(obj.). (= him)	Live-did	(indicates plu. subj.)	that-at	three-(anim.).	Then

tan-ji	limik	ama	wid-ji	kaiu-i	am	hi	eñt·im	ama	ta-nit
go-did	Hawk.	Then	say-did	Coyote-to:	" Not	will	sleep ! "	Then	that-from

yiwin	an	limk-in	tan-ji	ama	modot-ci	ama	kaiu	eñt·im-ji
wife	his	Hawk's	go-did.	Then	seed-gather-did.	Then	Coyote	sleep-did

modotc-iu	an
seed-gathering-at	her.

Yuki.

1.	k'am-l-itc	ii	mil-t'u	yii-k-i-k-am	ii
2.	?-er-diminutive (panther-little)	quotative, indicates a myth	deer-heart	play-?-phonetic-action-continuative	quot.
3.	Wild-cat		deer-heart	playing-with	

1.	im-pis	hul-k'oi	nau^{n}'-mil	sa^{n}-ii
2.	where-from	eye-gopher	look-did	indicates continuance of subj.; + quot.
3.	from-somewhere	Coyote	watched.	Then

1.	ai^n-it	wo'-ma	na^n	si-ii	ki-mac-nam-il-k
2.	glide-?	walk-motion-toward	and	indicates change of subject; + quotative	that-thus-?-?-present
3.	gradually	(C) walking-toward	and	then	(W) doing-thus

1.	ii	ha^{n}ca	a'-i	suup-is	ii	yii-k-i-mil
2.	quot.	again	slope-on	throw-repeatedly	quot.	play-?-phon.-did
3.		again	on-the-slope	throwing		(W) played.

1.	si-ii	im-pis	ki	hul-k'oi	nau^n'-mil
2.	indic. change subj.; + quot.	where-from	that	eye-gopher	look-did
3.	Then	from-somewhere	that	Coyote	watched.

1.	si-ii	an	ki-mac-ik	ii	yii-k-i-mil
2.	indic. change subj.; + quot.	always	that-thus-present	quot.	play-?-phon.-did
3.	Then	always	doing-thus		(W) played.

CONCLUSION.

It will be seen that the two families agree so closely at so many points, that their morphological similarity and appertainance to the same type of language are unquestionable. Their phonetic systems are practically identical, both in constitution and in use; their means of structure, practically confined in both to suffixation, are identical; and the grammatical categories expressed are closely similar, — the lack of syntactical pronominal elements and of affixes of instrument or shape, the presence of cases, a limited expression of number and of the idea of animation, — besides a general resemblance in the treatment of the verb. A general phonetic and grammatical simplicity and absence of polysynthetic qualities pervades both families; and the degree to which their similarities are fundamental is quickly and convincingly apparent when they are even superficially compared with such languages as Iroquois, Algonquin, Shoshonean, Eskimo, Nahuatl, Wakashan, Chinook, Salish, or Siouan.

The principal differences between the two families are that Yokuts is comparatively more polysyllabic, possesses vocalic harmony and to some extent reduplication, lacks composition almost entirely, shows less etymological derivation, and has considerably fewer grammatical suffixes, than Yuki. In other words, it may be said that the two families are fundamentally similar in range, scope, and method of expression; and that the morphological difference between them is principally one of degree, Yuki showing a greater number of more invariable grammatical elements more freely combined with stems, and Yokuts a smaller number of elements causing more variation in stems and less freely combined with them.

THE PRONOMINAL DUAL IN THE LANGUAGES OF CALIFORNIA.

BY ROLAND B. DIXON.

THE languages spoken by the Indians of California offer one of the most fruitful fields for linguistic study in America. The interest and importance of the region lie in part in the variety of types found in the many languages within this small area, but also in the opportunity they afford for tracing progressive differentiation, and the influence of one language upon another. Almost any grammatical feature, considered by itself, shows interesting modifications, if traced throughout the different languages and their dialects. Of the minor features which may thus be studied, that of the development of a pronominal dual and its relation to the systematization of the personal pronoun is of interest, inasmuch as, in addition to showing a varied development and transitional forms, the results seem to go counter to the general tendency toward territorial continuity, which has been noted as characteristic of the region.

A pronominal dual is rare in California, and seems on the whole to be associated with a tendency toward systematization of the pronominal forms. If, however, we examine the matter in detail, we find that in the three stocks in northern California in which the dual occurs (Wintun, Maidu, and Washo), the extent of the systematization varies, differing even among the different dialects of a single stock. We may also find examples, perhaps, of mutual influence between languages possessing a pronominal dual, and those which do not.

In considering the subject, we may begin with the Wintun. Here material is available from two dialects only, — the northern and the southern, — out of a possible four. In the northern dialect, spoken on the upper Sacramento and McCloud Rivers, the pronominal forms are throughout perfectly regular, the dual and plural being formed systematically from the singular, as shown in the following paradigm. The forms given are the subjective.

	Sing.	*Dual.*	*Plu.*
1st pers.	nī	nēl	nī'tĕ
2d pers.	mī	mēl	mī'tĕ
3d pers.	pī	pēl	pī'tĕ

In the southern dialect, spoken about Colusa and Rumsey, almost the same regularity persists, although the forms themselves vary considerably from those in the north. The following paradigm shows the possessive forms, which exhibit the regularity just as well as the subjective, of which a full paradigm is not available.

	Sing.	*Dual.*	*Plu.*
1st pers.	na'nō	ne'pelēnō	nē'lemin
2d pers.	mato'nō	mā'pelēnō	mā'lemin
3d pers.	ū'nō	ū'pelēnō	ū'lemin

It will be noted here, that while the regularity is still great, yet the second person exhibits a slight lapse from the rigid system of the northern dialect. The Wintun, therefore, although predominantly systematic, shows a slight differentiation in this regard between the two dialects.

In the case of the Maidu, this tendency toward variation is more marked, as in each of the three dialects we find a varying degree of regularity, greatest in the southern, and least marked in the northeastern dialect. The southern form runs as follows in the subjective: —

	Sing.	*Dual.*	*Plu.*
1st pers.	nī	nās	nēs
2d pers.	mī	mām	mēm
3d pers.	möm	mösā'm	mösē'm

The regularity here is not as striking as in the northern Wintun; for whereas there the dual and plural of all three persons were formed by the same suffix and vowel change, here, although the vowel-change is the same for all, the suffix varies with the different persons. It is the same, however, for the same person, in both dual and plural.

If we turn to the northwestern dialect, a slightly greater irregularity is apparent, as shown again by the subjective form.

	Sing.	*Dual.*	*Plu.*
1st pers.	ni	nisā'm	nisē'm
2d pers.	mī	mīmā'm	mimē'm
3d pers.	mōm	mösā'm	mopā'm

It will be noted here that the third person now has a different suffix in the plural from that used in the dual.

The northeastern dialect carries this irregularity still further, the uniformity of vowel-change being interfered with in the second and third persons dual, and the second person plural, with the addition of a slight difference in the suffix of both second and third persons in the dual and plural. The forms given are again the subjective.

	Sing.	*Dual.*	*Plu.*
1st pers.	ni	nisā'm	nisē'm
2d pers.	mi	mi'ntsem	minsö'm
3d pers.	möye'm	mötso'm	mö'sem

In the three Maidu dialects, therefore, a progressively greater irregularity of form appears as we proceed from south and southwest toward the north and northeast.

A true pronominal dual does not exist in the Shasta-Achomā'wi stock; but in the Achomā'wi and Atsugē'wi branches of the stock, which are in contact with the Wintun and the Maidu, we find the dual regularly expressed in the verb. The independent pronominal forms, in both these languages, show no trace of a dual; but the affixed subjective forms, used with the verb, differentiate the dual from the plural forms by means of a suffix. These forms are shown in the two paradigms below.

Achomā'wi.

	Sing.	*Dual.*	*Plu.*
1st pers.	s-	l'h-	l'h- -(m) a
2d pers.	g-	gidj-	gidj- -(m) a
3d pers.	y-(i-)	iy-(ii-)	i- -dji

ATSUGĒ'WI.

	Sing.	*Dual.*	*Plu.*
1st pers.	s-	w- -hai	w- -au
2d pers.	m-	midj- -hai	midj- -au
3d pers.	w-	w- -wa	w- -wa(?)

These forms seem to lie intermediate between the type represented by the Wintun and Maidu, which possess a dual and plural in all the forms of the personal pronoun, and the type of the Lutuami or the Shasta, where there is no indication of a dual of any sort. It will also be noticed that there is considerable regularity in the forms of these pronouns, in so far substantiating the belief that a pronominal dual is in some way associated with a systematization of the pronominal forms.

From a consideration of the relative positions of the northwestern and northeastern Maidu on the one hand, and the Achomā'wi and Atsugē'wi on the other, it appears that the varying regularity of the two former, and the distinction of the dual from the plural in the verb alone in the two latter, may perhaps be explained by the influence of one language upon its neighbors: for the Achomā'wi and Atsugē'wi, who alone within that stock show the beginnings of a dual form, are in contact on two sides with languages (Wintun and Maidu) which possess a regular pronominal dual; and, on the other hand, of the three dialects of the Maidu, it is only the northwestern and the northeastern which show irregularity to any extent, and these are the dialects which come most closely in contact with languages not possessed of a regular dual. It may also be pointed out, that of the two, it is the northeastern (which comes more closely in touch with the languages without a dual than does the northwestern) which shows this irregularity to the greatest degree. It would seem, however, that we may not rely too confidently on this supposition of mutual influence; for there appears to be no trace of it in the case of the Wintun, which, in spite of being surrounded on two sides by languages without a dual, yet is the most regular in its dual and plural forms of any of the cases mentioned. Yana also, almost surrounded by languages having a dual, shows no trace of it.

One further point in connection with the subject of a pronominal dual, and the regularity of pronominal forms may be alluded to. These features occur, as has been stated,[1] in three other stocks in California, — the Yokuts, Washo, and Salinan. The Washo[2] occupies an area contiguous to, and immediately east of, the Maidu, and thus forms part of a continuous territory of some extent. The Yokuts and Salinan, on the other hand, while together occupying a continuous area in the southern part of the State, are not in direct contact with the first area lying farther to the north, being separated from it by the intervening Costanoan and Miwok;[3] the small isolated area of Yokuts about Stockton forming the only link to connect the two.

In almost all features, the Californian languages show a noticeable geographic continuity, a given characteristic being found throughout a continuous area, as a rule. In this feature, however, of the pronominal dual, the continuity is interrupted. It has already been noted,[4] that, on other grounds, the transposition of Yokuts and Miwok would lead to a greater continuity of type, and that the general affiliations of the Yokuts were clearly with the Maidu. It would seem, then, that in this very minor feature of the existence of a dual and the regularity of the pronominal forms, there was to be found further confirmation of this view.

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[1] Dixon and Kroeber, The Native Languages of California (American Anthropologist, N. S., Vol. v, p. 14).

[2] Material from the Washo is unfortunately not available for comparison here.

[3] Moquelumnan.

[4] Dixon and Kroeber, l. c., p. 22.

SOME NOTES ON THE MAYA PRONOUN.[1]

BY ALFRED M. TOZZER.

THE pronominal forms in Maya are added directly to the root-stem. They do not lose their identity when thus added, but they are often phonetically changed. The pronouns do not occur alone as individual words, and thus they should be treated syntactically when the Maya language is considered as a whole.

There are two personal pronouns, — the verbal and the nominal. The first may be called the objective, and the second the subjective or possessive pronoun.

The verbal pronoun forms the subject of intransitive verbs in all cases except the present, and it is also used as the object of transitives. This is the true pronoun. It may stand alone when compounded with *t;* as *ten, tetš,* etc. This is used when great emphasis is desired: e.g., Mas putš-en? ("Who hit me?") T-en putš-etš ("I hit you," or, more literally, "I am the one who hit you"), thus bringing out the verbal idea contained in this form of the pronoun.

Singular.		*Verbal Pronoun.*	*Nominal Pronoun.*	
1st pers		en	in	
2d pers		etš (ech)	a	
3d pers		—	u	
Dual.				
1st pers.	(inclusive)	on	k	
	(exclusive)	on	k	-on
Plural.				
1st pers.	(inclusive)	oneš	k	-eš
	(exclusive)	oneš	k	-oneš
2d pers		eš	a	-eš
3d pers		—	u	-ob

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[1] These notes were collected under the auspices of the Archæological Institute of America, and a detailed study of the Maya language will be brought out under the direction of the Institute. The notes were made at Chichen Itza, in the northeastern part of Yucatan. The language differs slightly in various parts of the peninsula. I am under obligations to Professor Franz Boas for valuable instruction and his kindly assistance in carrying out this work.

The nominal pronoun is the subject of all transitive verbs, and also in the present of the intransitive. It is also used as the possessive pronoun. Even when it is employed as the subject of most verbs, the possessive relation is uppermost.

The persons expressed by the verbal pronoun are the first and second person singular, the first person dual, and the first and second person plural. In this pronoun there is seemingly no distinction between the inclusive and exclusive forms. In the nominal pronoun there are several more forms. We find a first, second, and third person singular. The inclusive and exclusive forms of the first person dual and plural are distinguished by suffixes. The second person plural is also distinguished from the second person singular by the addition of a suffix also found in the first person plural in both pronouns. The third person plural adds the nominal plural suffix to the singular form.

The verbal pronoun is not used in connection with any time-particles, but the nominal pronoun has a set of time-particles which are almost invariably found with it.

The present time-affix is *tan*. This is seen in the first person dual and plural, where we have *tan-k*. In the other forms there is a contraction, *tan-in* becoming *tin; tan-a, tan;* and *tan-u, tun*. Among the Lacandones in the region to the southward of the Mayas, the uncontracted forms are usually found.

The time-sign added to the pronoun for expressing the past is *t*. This unites with the pronoun and forms *t-in, tin; t-a, ta; t-u, tu*. In the first person singular the resulting form is the same as the corresponding person in the present, although this latter comes from a contraction of *tan-in*. In the first person dual and plural, the pronominal prefix *k* is dropped, and the sign of the past, *t*, is changed as a consequence to the fortis, *t*.

The prefix *ɔok*, the root of the verb meaning "to finish or complete," is used as a time-particle, denoting that an action is just completed. The Lacandones here again use the uncontracted form, *ɔok-in, ɔok-a, ɔok-u*. In the Maya of the peninsula, these contract into *ɔin, ɔa, ɔu*.

The future idea is expressed by the particle *he* compounded with the forms of the nominal pronoun. I have been unable to find the derivation of this particle *he,* as well as those expressing present and past time. Undoubtedly they are derived from former roots, which may have disappeared in the same way as we find the particle *ɔok,* expressing completed action, coming from a root now in use. This future particle is found in the contracted forms, *he-in* to *hēn, he-a* to *ha,* and *he-u* to *hu.* The first person plural, as we saw in the case of the present pronoun, is uncontracted, *hek.*

Another form of the nominal pronoun is that compounded with the particle *k,* as *k-in, k-a, k-u.* These forms seem to have rather the idea of a subjunctive, a future possibility. In some parts of Yucatan this is the common form of the pronoun, with no idea of a subjunctive.

The reciprocal pronoun is formed from the nominal pronoun with the suffix *-ba.*

The demonstrative pronoun has three forms. There is no well-developed system defining the noun in relation to the speaker, the person addressed, and the person spoken of. The demonstrative roughly corresponds to the Spanish demonstratives, *este, ese,* and *aquel.* It is expressed by a suffix, and is always found in connection with a sort of definite article, *lē,* a prefix, the latter being seldom used alone: for example, Lē-winik-a, "this man here;" lē-winik-o, "that man there;" and lē-winik-e, "that man at a distance." There is no idea expressed in Maya as to the visibility or invisibility of an object in relation to the speaker.

Like all other early linguistic work on primitive languages, the early Spanish priests and historians had the Latin grammar in their minds when working with the Maya; and as a consequence, much has been overlooked, and many expressions have been turned so as to conform with Latin models.

AN ALGONQUIN SYLLABARY.

BY WILLIAM JONES.

A CURSIVE style of writing by means of syllabic symbols is employed by the Sauk, Fox, and Kickapoo for purposes of record and communication. Most of the Sauk are in eastern Oklahoma; nearly all the Fox are in central Iowa; and the Kickapoo are to be found in central Oklahoma, in eastern Kansas, and over the Texas border in Mexico. All three are Algonquin; and their dialects are so intimately akin, that it is little or no difficulty for them to understand one another; and back and forth with one another they correspond by means of letters written in the phonetic signs of the syllabary.

The general appearance of the symbols of the syllabary is not very unlike cursive, Roman characters. The symbols represent four vowels and eleven consonants. The value of each symbol is collective; that is to say, the sign of a vowel represents a group of related vowel-sounds, and it stands for either a short or a long quantity, and the sign of a consonant may include more than one variation of a certain place of articulation. These points will come out plainly in the description of the symbols. The first to come are the vowels, and they are given with approximate English correspondences.

𝒶 or 𝒜 is like *a* in *what,* or like *a* in *all,* or like the vowel-sound in *hut.* The regular place for 𝒶 is within the word or at the end of it, and 𝒜 always occupies initial position.

ℯ is like *e* in *let,* or *a* in *late,* or like *a* in *alley.*

𝒾 is like the short *i* in *it,* like the long vowel-sound in *see.*

ℴ is like the short *o* in *fellow,* or like the short *u* in *full,* or like the long *o* in *rose,* or like the long vowel-sound in *loon.*

There is no sign to indicate a diphthong. When the double sound is encountered, the sign of the first vowel is used.

In the description of the signs of the consonants, it may prove simpler to give the signs with approximate English equivalents, and afterwards to point out some of the various articulations which a part of them represent. The signs of the consonants are —

ℓ,	like *p* in *pen.*	𝓌,	like *w* in *we.*
𝓉,	" *t* in *ten.*	𝓂,	" *m* in *me.*
,	" *s* in *see.*	𝓃,	" *n* in *no.*
𝒹,	" *sh* in *she.*	𝒦,	" *k* in *kill.*
𝓉𝓉,	" *ch* in *church.*	8,	" *q* in *quit.*
𝒥,	" *y* in *you.*		

There are at least three slightly different articulations with each of the consonants ℓ, 𝓉, and 𝒦; ℓ may be almost like the sonant *b* in *bun;* or most often it may be like *p* in *pit;* and it may be a bilabial stop preceded by a whispered continuant before articulation. In the same way, 𝓉 may be nearly like *d* in *day,* or like the voiceless *t* in *ten;* it may also represent a dental stop preceded by a gentle puff of breath. And so with 𝒦, the sign can be for a stop nearly like the sonant *g* in *gun,* or like the *k* in *kill;* as in the case of the other two consonants, it may represent a stop preceded by a hiss of breath.

There is no sign for the very common aspirate *h.*

It will thus be observed that the syllabary lacks in two very important features: it is weak in its range of expression, and it wants in delicate gradation of sound.

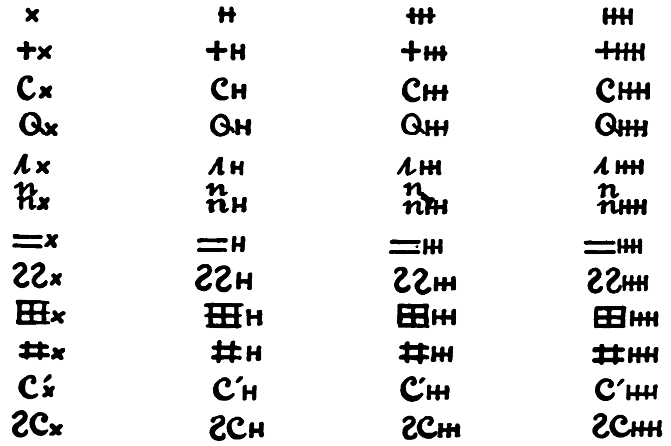
It is common to associate the consonants in combination with vowels; and in learning the syllabary, the vowels are told off first, and afterwards the consonants in combination with the vowels. The order followed is not vowel and then each consonant one after the other with that vowel, but first all the vowels, and then one consonant at a time in connection with all the four vowels. The order of the symbols is usually as follows.

u A	*e*	*i*	*o*
lu	*le*	*li*	*lo*
tu	*te*	*ti*	*to*
su	*se*	*si*	*so*
du	*de*	*di*	*do*
ttu	*tte*	*tti*	*tto*
Ju	*Je*	*Ji*	*Jo*
wu	*we*	*wi*	*wo*
mu	*me*	*mi*	*mo*
nu	*ne*	*ni*	*no*
Ku	*Ke*	*Ki*	*Ko*
gu	*ge*	*gi*	*go*

The symbols are sometimes modified for hidden motives. A simple form of the modification occurs with change of vowel only: in this change there is no sign for *u* or *A*; a low dot (.) represents *e*, a raised dot (·) stands for *i*; and two low dots (..) are for *o*. In this slightly altered form, the syllabary then appears as follows:—

l	*l.*	*l·*	*l..*
t	*t.*	*t·*	*t..*
s	*s.*	*s·*	*s..*
d	*d.*	*d·*	*d..*
tt	*tt.*	*tt·*	*tt..*
9	*9.*	*9·*	*9..*
w	*w.*	*w·*	*w..*
m	*m.*	*m·*	*m..*
n	*n.*	*n·*	*n..*
K	*K.*	*K·*	*K..*
8	*8.*	*8·*	*8..*

A much wider modification occurs with complete alteration of both vowel and consonant. In the vowels, *u* and *A* become ×, *e* becomes H, *i* becomes ǀH, *o* becomes ǁH. In the consonants, *l* becomes +, *t* becomes C, *s* becomes Q, *d* becomes *i*', *ht* becomes ⁿₙ, *J* becomes ═, *w* becomes ƧƧ, *m* becomes ⊞, *n* becomes ♯, *k* becomes C ′, and 8 becomes ƧC. The syllabary then takes on this form: —



This is a rather brief description of the phonetics of the syllabary, but perhaps ample enough for a clear understanding of its general character. The working of the syllabary can rapidly be shown in the same brief manner; and it can best be exemplified by means of a text. It will there be observed that there are no marks indicating accent, and that there are only four signs for punctuation: the period (.), the short dash (–), the multiplication-sign (×), or the plus-sign (+). The period or the dash separates words and word-sentences, and the multiplication-sign or the plus-sign marks the end of sentences.

The text is a short historical fragment. It fits into a familiar legend known to most southern Algonquin, — a legend that refers to a time when it was believed that all the Algonquin were one people and together. The incident here recited is given with the symbols of the regular form of the syllabary and in the dialect of the Fox; and an interlinear translation follows with it.

ne ko te nui li. A da wa ge. me dya ki a ki
It was once on a time they say long ago Red-Earth (people)

o d ki na we a ki, e di da wa tti . e ma wi ne la wa tti x
they that were young in growth they went to hunt for game to a place where they went to pass the night out.

ma gu ne ne sa wa tti x i ni li . A ne tu . e la ka to wa tti
A bear there they killed. The story is told that part of them they boiled it

ma ko si ta ni x ki de sa mo wa tti. e tta ka ta mo wa tti x
the bear foot; after they had finished cooking it, they then ate it all up.

i ni ke de no tti ki . e ge ga wa tti.
They that were absent when they came back,

e ki di tti ge to ke tta ka ta mi ni te e. ma ko si ta ni x
was by that time lo they must have eaten it all up the bear foot.

i ne me ta we wa tti. e la ke wa tti x i ni ki tta i ni ki.
Thereupon they sulked, then they separated. They truly they

ma ko si ta ni. me ta wa tti ki . e ne tti ki x
bear foot they that sulked such are they called.

e ta nu tti me tti . i li . e a wi wa tti.
Stories are told of them ; it is said that where they are

e a ga na ki se ki . me de si lo wi . A do wa ki wex
at the end of the place where the big river. Over the high land.

i ni ki tta i. ma ko si ta ni . me ta wa tti ki x
they are bear foot they that sulked.

A rather free rendering of the tale reads as follows: —

It is said that once on a time long ago some youths of the Red-Earths (Foxes) started on a hunt for game, and went to a place where they were to be out over night. There they slew a bear. It is said that some of them boiled a foot of the bear; and after they had finished cooking it, they then ate it up. Now, when they that were absent came back, lo, by that time the bear-foot must have been eaten up.

Thereupon they (who came late) sulked, and so parted company (from the others). They truly are the ones that are called They-who-sulked-on-Account-of-the-Bear-Foot. Stories are told of them; it is said that they now are on the other side of the height of land where the source of the Mississippi River is. They are the Bear-Foot Sulkers.

A syllabary was in use among some Algonquin at a very early period. One was used by Eliot at Natick in his missionary labors with that Massachusetts dialect; another was used by LaCombe and other Jesuit missionaries in their work among the Ojibwa and the Cree of Canada. The syllabary employed by Eliot was in Roman letters, and the one used by LaCombe and others was and still is in what are called "Cree characters."

The adoption of the syllabary by the Sauk, Fox, and Kickapoo is of very recent date. It is not certain at present which of these dialects was the first to take it up; but the one that was the first to learn it no doubt quickly taught it to the other two. It seems pretty certain, also, that the system was deliberately borrowed from an outside source, most likely from an Algonquin people that had had experience with the writings of Christian missionaries. It shows no trace of development from the old figurative representations, realistic or conventional, to the phonetic scale. The old form of writing is rarely practised these days, and the jump from the old to the new must have been sudden. The syllabary is in general use among the younger people and by a limited number of the more elderly. Boys and girls handle it with more ease and speed than the older folk.

TERMS FOR THE BODY, ITS PARTS, ORGANS, ETC., IN THE LANGUAGE OF THE KOOTENAY INDIANS OF SOUTHEASTERN BRITISH COLUMBIA.

BY ALEXANDER F. CHAMBERLAIN, Ph.D.

OF all categories of words in the languages of primitive peoples, none are more interesting, in certain respects, than those concerned with the naming of the body and its various parts, organs, etc. Such words often reveal many naïve anatomical, physiological, and psychological ideas; and their study throws not a little light sometimes on the mind of primitive man. The language of the Kootenay (Ki'tōnā'qa) Indians of southeastern British Columbia and northern Idaho, upon the study of which the writer has been engaged for some years past, forms a distinct linguistic stock, and has a number of morphological and grammatical peculiarities, which are also more or less *sui generis*. The terms for "body" and "mind" deserve special mention.

Body. The radical for "body," used in composition, is *tlqō or i'tlqō*. This forms the basis of many terms expressive of general bodily conditions, etc. Thus: K'ā'tlqō'inē, "he is stout" (literally, "broad[*k'ā*]-bodied he is"); sū'kētlqō'inē, "he is well" (literally, "good[*sūk*]-bodied he is"); sā'nitlqō'inē, "he is sick" (literally, "bad[*sān*]-bodied he is"); k·ū'temiksā'nitlqō'inē, "he has a fever" (literally, "hot[k·ū'temī]-bad-bodied he is"). Physically and anatomically *tlqō* has about the same range of employment as its psychic correlate, *tlwē,* or *i'tlwē,* "mind" (literally, "heart"). These radicals have both a common particle, *tl,* or *itl,* the bare roots being respectively *qō* and *wē,* or *wī*. Father De Smet (1859) gives for "body" *akulgglek;* but this is evidently the word āqkū'tlāk, "flesh," which has not properly the exact sense of "body," although it may be so used sometimes, as is our English word "flesh." In Howse's vocabulary (1850) the word for "body" is given as *aco no cack* (i.e., ā'qkōnō'kāk), and the word for "side" as *ac kin no cack* (i.e., ā'qkinū'qkāk, properly "ribs"), which terms, with differing particles *ko* and *kin,* have the same radical *kāk,* or *ūqkāk,* — or rather radical-suffix *kak,* since this appears in so many words relating to the body and its parts, as does likewise the prefix *āq-, āqk-,* etc. Dawson (1884) has for "body" a word, *a-kitl-hl-hluk-e-noo-ha* (apparently āqkē'tlitlū'kenūqā), the etymology of which is not clear. The word given by an Indian for "tickle (with a feather)," kīsū'kitlqō'inē, seems to mean "the body feels good."

Mind. The general term for "mind," "thought," etc., "will," is ā'qkitlwī'nām (radical *tlwī,* or *i'tlwī,* which originally and properly signifies "heart"), the seat of the emotions, will, thought, intellect, etc., having been primitively located in that organ, according to Indian belief. The radical *tlwī,* or *i'tlwī,* forms the basis of many psychological expressions, etc. For example: Sā'nitlwī''nē, "he is angry" (literally, "bad-minded [hearted] he is"); kātlwī''nē, "he thinks, wills, wishes, desires." In De Smet's version of the Paternoster, "Thy will be done" is rendered *inshazetlwite* (properly hi'ntsqātlwī'tē, "Thou shalt have thy will"). A later translation, by Father Coccola, renders "will" by *aqketlouinam* (i.e., ā'qkitlwī'nām).

The terms for the special parts of the body, organs, etc., are as follows: —

1. **Ankle.** The Kootenay language has at least two words for "ankle," — ā'qk·ana'kenām and āqki'tsk·ānā'mkē. The first is a general term for all joints of the body, — knuckles, wrists, ankles, etc. The second signifies "what one stands upon, or with (to walk with)," being derived, with the prefix *āq-* and the instrumental suffix *-kē,* from the radical seen in nā'witsk·ā'i'nē, "he stands up (walks)." The conception of the "ankle" as something to stand up on, or to walk with, is also found in children. The little daughter (48th month) of the writer defined "ankle" thus: "Ankle means to walk with."
2. **Anus.** The word āqk'ā'tlahi'k'p applies to the anal aperture of fishes, animals, human beings, etc. It has one important component in common with āqk'ā'tlaha'u'it, "door" (the radical particle *k'ā* signifies "aperture, hole"), and probably means "buttocks-hole." The word "to void excrement" (nō'qtēk, *cacat*) is

not related; nor the word for "excrement," āqkō'tlē. The word for *pedire* (natcū'kpinē, *pedit*) is possibly connected, but not its synonyme tsistik.

3. **Arm.** The general term for "arm" is āqktlā'tenām (radical *ktlāt,* or *tlāt*). The "fore-arm" is ā'qktaptsi'tenām (radical *taptsit*); the "upper arm," ā'qkintlū'mi'nām (radical *tlū'min*). The prefix or affix *kin* seems to signify "top," "upper end." Dawson 1884) gives terms for "right arm" and "left arm;" viz., *a-ko-yut-e-nam* (i.e., ā'qkōyū'tenām) and *koo-kootl-e-nam* (probably ā'qkūkū'tlenām). These were verified by the present writer. The word for "bracelet," gīyā'tlkātl, has nothing to do with "arm" or "wrist." The word for "sleeve" (kātlā'tlā, "my sleeve") is related.
4. **Armpit.** Dawson (1884), in his vocabulary, gives for "armpit" *a-kit-hloo;* but this is evidently the word for "heart," āqki'tlwī, or āqki'tlūī. Perhaps the recorder of this word, when asking for it, indicated on himself or an Indian the region of the body near the heart, and so led his subject astray. Such a mistake is often made.
5. **Back.** The general term for "back" is āqktlā'kenām (radical *ktlāk,* or *tlāk*). The existence of more complicated words is indicated, however, by the *ac cooe cah slack* (i.e., ā'qkū'kā'tlāk) of Howse (1850) and the *a-koo-ke-klah-e-nam* (i.e., āqkū'ketlā'kenām) of Dawson (1884). Here the radical *tlāk* is accompanied by various modifying particles. To express actions done "with the back," there is a special particle *qō,* which is employed as follows: Nitqō'inē, "he lies down" (literally, "he does [*it*] with the back"); nā'tlqō'inē, "he carries (*atl*) on his back."
6. **Back-bone.** The word *kakkeglek* (i.e., kāktlāk), given for "back-bone" by De Smet (1850), really signifies "my (*kā*) back." The term for the back-bone of a fish is ā'qkōgā'tkā.
7. **Beard.** The word for "beard," ā'qkōk·tlū'tlaqā'enām, is sometimes used to include all the hair on the face (beard, whiskers, mustache, all together). The radical is *ō'k·tlūtla'qā,* in which *ōk·* is a determinative particle, as may be seen from the words for "hair," "head," etc.; the ultimate root is *tlūtla'qā.* Beards and mustaches are not unknown among the Kootenay Indians, although depilation of the face is in vogue. Hale (1842) gives for "beard" akuat (i.e., *āqk·ō'wāt,* properly "hair" of an animal). One Kootenay Indian met by the writer had two names referring to his possession

of a beard; viz., Gōwō'ktlūtla'qā ("he has a beard") and Gānū'qtlōtlūtla'qā ("he has a white beard"). The word for "hair-nippers," tlūktlū'tlāhāpkinē'mōtl, signifies "implement for pulling out the beard."

8. **Belly.** The general term is ā'qkōwōm, of which the root is *wōm,* or *wūm,* the *kō* being a determinative particle. It appears in composition thus: witlwū'minē, "he is stout" (literally, "big[*witl*] -bellied he is"); tlāka'kewōm, "to choke;" ni'sinē kāā'qkōwō'm, "my belly aches" (literally, "it pains, my belly"). The "cricket" is called ā'qkōktlakō'wōm, perhaps in reference to its "belly." In a Kootenay legend relating to the mink occurs the place-name Ts'mā'kōwō'm, i.e., "Strong-Belly." The "house-fly" also is named from its "belly" ā'qkōkō'wōm (cf. also āqkō'k·ōā'-tsōwōm, "belly-band of horse").

9. **Bladder.** For "bladder" the term is āqk·ō'k·'ōmāt. The word for "rattle" is identical. The "rattle" was originally a "bladder," with some noise-making substance inside.

10. **Blood.** The word for "blood" is wā'nmū, with which the term for "to bleed" (hōtsū'kinē, "I bleed") seems not to be related. Nor is the term for "red" (kānō'hōs, the radical is *nōhōs,* or *nōs*) connected with that for "blood."

11. **Boil.** The word for "boil," g'ātsenē'nām (the *-nām* is generic suffix), is one of the words in this category not taking the prefix *aq-* or *aqk-*.

12. **Bone.** The word for "bone," māk', or māk'e, is a term of wide signification. For the "bony joints" of the body, knuckles, wrist, knee, etc., ā'qk·ana'kenām is used.

13. **Brain.** The Kootenay seems to possess a special term for "brain," viz., ātlgas, which does not show relationship with any other of the words discussed here, except that the *ātl* may appear also in the word for "skull." One of the words for "ghost," kā'ātlkā ("what comes from the brain"), is related.

14. **Breast.** The general term for the "breast" of man, woman, animals, etc., is ā'qkūi'tekā'kenām (radical probably *i'tekāk,* with particle *kū* or *kō*).

15. **Breast-bone.** The term for "breast-bone," āqkqaskā'kenām (radical, apparently, qaskāk), seems related to āqkinhās, the word for the "breast" of a bird.

16. **Buttocks.** The word for "buttocks (rump)" is āqki'k'pū'kenām (radical *k'pūk,* with particle *ki*), which differs from the word given for "thigh" in the determinative particle only.

17. **Calf.** The word for "calf of the leg," āqkō'ktlīkă'tenām, seems related to ā'qkōwō'kenām, "leg below the knee," and to āqktlī'kenām, "foot." The radical is probably *ktlī'kăt,* or *tlī'kăt.* Dawson (1884) gives another word, *a-kutl-nam* (i.e., āqkū'tlnām).

18. **Cheek.** The radical of the word for "cheek," ā'qkemă'mă'tlenām (radical *mă'mătl*), is one of the few stems formed by reduplication, in Kootenay.

19. **Cheek-bone.** For "cheek-bone" some Indians gave the term for "cheek."

20. **Chin.** The word for "chin," āqki'nkāmtsinka'kenām, seems to differ from the word for "lower jaw" only in the possession of the particle *kin,* which signifies "end, point, extremity." The second word seems also to signify "chin" and "lower jaw" together.

21. **Crown.** The word for "crown of the head," āqki'nk·ānūktlă'm'nām, is derived from āqkink·ān, "top;" ūktlām, "head;" and *-nām,* generic suffix.

22. **Ear.** The radical of āqkō'k·ōă'tenām, "ear," is *k·ōăt.* With this seems to be connected neither the word for "hear" (nōtlpă'tlinē, "he hears;" radical *ōtlpătl*) nor that for "deaf" (tli'tk·āpă'tleni'tit, "not hearing"). The word "to honor" (hintshă'tlhōtlpă'tlenă'pinē, "you shall honor me") is identical with that for "to hear," i.e., "to listen to." From the term for "ear" is derived the word for "ear-ring," āqkō'k·ōă'tskāk·ū'nām. The term for "mule," gūwi'llk·ō'ăt, signifies literally "big ear." The word for "gills of a fish," āqkōk·ōă'tsek·ă'enām, seems related.

23. **Elbow.** Although the general term ā'qk·ana'kenām is applied to the "elbow," as well as to the other bony joints of the body, there is a special word, āqkinū'ktaptsi'tenām, which signifies really "end of the fore-arm."

24. **Excrement.** The general term for the "excrement (dung)" of man, animals, etc., is āqkō'tlē. The verb corresponding is nō'qtēk, *cacat.*

25. **Eye.** The general term for "eye" (also used for "spectacles") is ā'qk·āk·tlē'tlnām, the radical of which is *k·tlētl.* From this is derived the word for "blind," tli'tk·tlētl ("without eyes"); but for "blind of one eye" there is a special term, kākō'mkāk. The terms "to wink," etc., are based on the radical *k·tletl.* The word

"to see," of which the radical is *ōpqa* or *ūpqa,* is not related to the word for "eye." For "to open the eyes" and "to shut the eyes" the words are respectively mātlnā'k·tlētl and tsūp'nā'ktlētl.

26. **Eyebrows.** The word for "eyebrows," āqk·ō'ātsk·ā'tlikā'kenām, contains the radical *k·ōāt,* "hair."
27. **Eyelashes.** The word for "eyelashes," āqkō'mak·tlē'tlnām, contains the radical *k·tlētl,* "eye."
28. **Eyelid.** The words for "upper eyelid" and "lower eyelid," ka'-iyāyū'niktlē'tlnām and ka'uminiktlē'tlnām respectively, contain the radical *k·tlētl,* "eye."
29. **Face.** The general term for "face" is āqkā'kenē'enām, the radical of which seems to be *kenē'.* There is no relation in Kootenay (as occurs in some languages) between the words for "face" and "eyes."
30. **Fat.** The word for "fat (grease)" of man, animals, — it includes such things as the fat in the entrails of fish and the like, — is āqk·ō'tātl, a term now applied also to "fat meats;" e.g., "bacon," etc. The term for "a fat person," or "a fat animal" (si'qinē, "he is fat"), is not related. For "oil" there is a special word, tinā'mū.
31. **Fingers.** The general term for "fingers," ā'qkitsqā'inām, seems to contain, besides the radical *qāi,* a particle *kits,* which occurs also in the word for "branch of a tree," ā'qkitsk'ā'tlāk, and has reference to the "branching" of the fingers. It appears likewise in the word for "tree," ā'qkitstlā'en and a number of other words. The radical *qāi,* or *kāi,* occurs also in ā'qkitsk·āimā'tlāk, "claws of birds." The radical *kē',* "hand," is distinct from *qāi.* The names of the five fingers are as follows: (1) t'ōtsa'kenām; (2) gō'tsemā'-kansqā'inām (i.e., "strong finger"); (3) kā'iyākā'wansqā'inām (i.e., "middle finger"); (4) gītlā'nwansqā'inām; (5) gīyā'p-taptsqā'inām, or gīyaptā'nitsqā'inām (i.e., "smallest finger").
32. **Finger-nails.** The general term for "finger-nails" is āqkō'ūkp', which applies also to the "claws" of animals and birds, and the "hoofs" of horses, etc. The radical is *ūkp'* (e.g., in gū'witlū'kp', "big-clawed").
33. **Flesh.** The general term for "flesh, meat," of all sorts, is āqkō'-tlākenām, of which the radical seems to be *tlāk,* with the particle *kō.* See **Fat.**
34. **Foot.** The general term for the "foot" of man or of the animals is āqtlē'kenām (radical *tlēk*). For the "foot (leg)" of birds,

āqkē'ikākenām is in use. The word "to kick," k·ānāktlēk, is based on the radical *tlēk,* "foot." The word for "to move the foot at the ankle" is gōwā'ntlēk.

35. **Fore-arm.** The word for "fore-arm," ā'qktaptsi'tenām, may have reference to the smallness of this part of the arm. See **Fingers.**

36. **Forehead.** The word for "forehead," ā'qkink·ā'tl'nām (radical *k·ātl,* with particle *kin,* found in several words expressing the idea of "top," etc.), is related to the term for "crown of the head," āqki'nk·ānūktlā'mnām; and also to āqki'nk·ān, "top, summit, point."

37. **Gall.** The word for "gall of a skunk" is nū'k'tū.

38. **Gums.** The word for "gums," ā'qktlūkmini'nām, may be related to the term for "mouth."

39. **Hair.** The general term for the "hair of an animal" is ā'qk·ō(ū)ā'tenām, or ā'qk·ōwā'tenām (radical *k·ōwāt,* or *k·ō[ū]āt*). For "hair of the head (human)" the word is āqkō'ktlā'menām, which contains the radical for "head." The word for "curly" appears in K·āntlū'tlām, "Curly-Head," the name of an Indian, — it is not, apparently, connected with the term for "hair." The term for "bald" is gānū'ktlōk, which seems derived from kämnū'qtlō, "white." The word for "to braid the hair" is kātlk·ō'tlām; for "braid of man's hair," k·ā'tlōk·oā'tsk'tlā'm. The word for "comb," tsō'ktlāmā'nēyā'tl, means "implement used with the hair."

40. **Hand.** The general term for "hand" is āqk·ē'inam (radical *k·ēi*). With this neither the Lower Kootenay pā'dlyā, nor the Upper Kootenay āqkātl, "glove," is connected; nor any of the terms for "handle," such as āqkān, "handle of a paddle," etc. For "with the hand (or foot)" there is a special particle, *kin,* used as follows: i'tkin, "to do, or make, something with hand" (nitki'nē, "he makes"); nātlki'nē, "he carries in the hand" (ātlkin, "to carry in the hand"); yū'āki'nē, "he paints" (literally, "he puts on with the hand"); hā'witski'nē, "he grasps (holds in his hand);" hō'tsōkō'kinē, "I break through the ice (pierce it with the hand);" yū'tsiki'nē, "he presses the hand down on it;" ō'mitski'nē, "he breaks with the hand;" tsinki'nē, "he catches with the hand."

41. **Head.** The general term for "head" is āqktlā'menām (radical *tlām*). The radical *tlām* appears in several other words, e.g., āqkō'ktlāmenām, "hair;" the terms for "crown of the head," "nape of neck," etc. "Head-ache" is thus expressed: ni'sinē kāā'qktlām, "my head aches" (literally, "it pains, my head").

One of the figures in Kootenay mythology is Wistā′tlātlām, "Seven-Heads."

42. **Heart.** The word for "heart," ā′qkitlwī′nām, or ā′qkitlūī′nām, has also taken on, as noted above, the wider psychological meanings of "will," "desire," "mind," "thought," etc.; the radical *tlwī,* or *ī′tlwī,* forming the basis of many new psychological ideas. The word is also, by transference, applied to the centre and core of things; e. g., the conical centre of the basket-trap for fish (known as yā′kā) is called ā′qkitlwī′is yā′kā (literally, "heart, its yaka").

43. **Heel.** The general term for "heel" is āqkō′kūpā′kenam (radical *kūpāk,* with particle *kō*). The word for "temple of the head," āqkū′qōpā′kenām, seems identical.

44. **Hips.** The term for "hips," āqkā″kpū′kenām, seems closely related to the word given for "buttocks," differing from it only by the determinative particle.

45. **Jaw.** The term for the "lower maxillary (including, apparently, the chin)" is āqkā′mtsinkā′kenām, which is closely related to the word given for "chin," the latter having in addition the particle *kin.*

46. **Joint.** For all the "bony joints" of the body (ankle, knee, knuckle, wrist, etc.) there is a general term, ā′qk·ana′kenām, or āqk·a′nk·anā′kenām (radical *k·anak,* with, sometimes, the particle *kan*). The words for "lame" and "limp," k·ā′k·ān k·ō′ōtēk and kāqu′ak·ān k·ō′ōtek, may be related. See **Knee.**

47. **Kidney.** The word for "kidney," k·ātlk·ā′tlqō, is one of the few simple reduplicative names in Kootenay. This word may contain *tlqō,* "body," or *-qō,* "with the back."

48. **Knee.** Besides the general term ā′qk·anā′kenām, applied to all the "bony joints" of the body, there is for "knee" a special word, yūwi′sk·ānā′kenām, "what one stands up with" (*yū,* "up;" *wisk,* "stand"). One of the figures in Kootenay mythology is Kō′mātlk·ā′nk·ō, "Lame-Knee."

49. **Knuckle.** The general term for "knuckles" is ā′qk·anā′kenām, a word applied to all the "bony joints" of the body.

50. **Left arm.** The word for "left arm" is ā′qkūkō′tl′nām (radical *kōtl,* with the particle *kū,* or *kō*). The same term appears to be also applied to the "left leg."

51. **Leg.** The general term for "leg" is āqtsā′kenām, or āqksā′kenām (radical *tsāk,* or *sak*); while for the "leg of a bird" there is a special word, āqkē′īkā′kenām (radical *kē′ikāk*). For "leg above the knee" there is a special word, ā′qkīyēni′kenām (radical *kīyē′-*

nīk); and for "leg below the knee," another, ā'qkōwō'kenām (radical *wōk,* with particle *kō*). The word for "to crook the leg at the knee" is gōwā'ntsāk, containing the radical *tsak,* "leg."

52. **Lip.** The words for "upper lip" and "lower lip" are respectively āqkō'kāyūk·ā'tlemā'nām, and ā'qkōmā'nām. The former contains among its components the composition-form of āqk·ā'tlemā'nām, "mouth;" and yū, "upon, above;" the "upper lip" being "what is above the mouth." The word for "kiss," kātlkōk·ātlemā'kenām, is related.

53. **Liver.** The word for "liver," nek·ā'penik, differs in formation from most of the words in this category.

54. **Lungs.** The word for "lungs," ā'qkemi'tlūpū'k·enām, is of uncertain etymology.

55. **Marrow.** The general term for the "marrow" of bones is ā'qkinūtl'mā'kenām, the radical of which seems to be *ūtl'mak,* with the particle *kin.* In this may be contained *māk,* "bone."

56. **Milk.** The word for "milk," tsō'wōm (tsō'ōm), or tsō'ō, is one of the few words in this category of a very simple form, having neither the prefix *ạ̄q-* (or related particles), nor the suffix *-nām,* attached to it. From tsō'ō is formed the term for "butter," tsō'ō tinā'mū (literally, "milk-grease").

57. **Mouth.** The general term for "mouth" is āqk·ā'tlemā'nām (radical *tle'mā,* with particle *k·ā*). This word may signify "opening, aperture of the œsophagus." See **Œsophagus.**

58. **Nape.** The word for "nape of the neck," āqkō'kūptlāmkā'kenām, contains the radical *tlām,* "head." See **Heel, Temple.**

59. **Navel.** The word for "navel," āqk·ā'tlākanā'enām (radical *tlākanā,* with particle *k·ā*), contains, like the word for "anus," the particle *k·ā* ("opening, aperture").

60. **Neck.** The general term for "neck" is āqkō'ōkā'kenām (radical *kāk,* or *ōkāk,* with particle *kō*). The word for "necklace (of beads)," ānā'enām (radical *ānā*), is not related.

61. **Nose.** The general term for "nose" is āqk·ū'nām (radical *k·ū*). For "end or point of the nose" there seems also to be a special term, āqk·ū'ktsatlā'nām (radical *ūk·tsa'tlā*). The latter appears in the name given to the "pig," ki'kānūk·tsa'tlā, or ki'yinūktsa'tlā (literally, "end of nose cut off," or, freely, "short nose"). The word for "sneeze" (k·ātē) is not related to the term for "nose," but is onomatopoetic.

62. **Nostrils.** For "nostrils" there is a special term, āqk'a'stlākā'kenām (radical *tlākāk,* with particle *k·ā*), in which appears the particle *k·ā* ("opening, aperture"). One Upper Kootenay Indian was named Gātlemā'kāstlā'ekāk, said to mean "he has big nostrils."

63. **Œsophagus.** The word for "œsophagus," ā'qktlumā'enām (radical *tlumā*), is possibly related to ā'qk·ātl'mā'enam, "mouth" (i.e., "opening of the œsophagus"). See **Mouth.**

64. **Palate.** The word for "palate" is āqkō'ōtlā'enām (radical *ōtlā,* with particle *kō*).

65. **Palm.** The term for "palm" of the hand, āqkō'ktlāqā'ienām (radical apparently *ktlāqāi,* with particle *kō*), seems to contain *qāi,* "fingers." The word for "to strike with the palm of the hand" is kātlūk·etlāyā'kātl, which contains apparently the radical of the term for "palm." For "to strike the palm of the hand with the closed fist" the term is gō'k·āntlā'tlēyē'tlēk, which contains the radical *k·āntlā'tltē,* "to strike." The word for "to clap the hands" is gōtā'ktlāiqō'mēk.

66. **Pupil.** The word for "pupil of the eye," āqkō'kōk·tlē'tlnām, seems to differ from the term for "eye" in one of the subsidiary particles only.

67. **Ribs.** The general term for "ribs" is ā'qkinōqkā'kenām (radical *ōqkāk,* with particle *kin*). Another word for "ribs" is āqki'nkāmātlā'kenām, which contains perhaps *tlāk,* "back."

68. **Right leg.** The term for "right hand" and "right leg" is āqkwiyā'tenām (radical *wiyāt*).

69. **Saliva.** The term for "saliva," āqkō'k'tlumā'enām, or āqkō'k·ā-tlumā'enām, is related to the word for "mouth," āqk·ā'tl'mā'enām, or āqk·ā'lumā'enām, containing, in addition, the particle *kō.*

70. **Scalp.** For "scalp of the head" there appear to be two terms in use; viz., ā'kinū'k·tlūk and ā'qk·ātlāmtlā'enām. The latter means "skin of the head," and contains the radicals *tlām* ("head") and *tlā* ("skin"). The former is closely related to the word for "bald." See **Hair, Head.**

71. **Septum.** The term for "septum of the nose," ā'qkinkā'ktsatlā'enām, differs from the word for "nostrils" in the particle *kin.* See **Nostrils.**

72. **Shoulder.** The Kootenay has at least two terms for "shoulder," — ā'qkinūk·ōmiō'enām and yā'kākantlā'tinā'mkē. The radical of the former is *k·ō'miō,* or *ūk·ō'miō,* with the particle *kin.* The other contains the radical *tlāt* ("arm"), together with the com-

pound instrumental prefix-suffix *yā . . . kē,* the literal signification being probably "what one raises the arm with."

73. **Shoulder-blade.** The term for "shoulder-blade" is e'tltātl, one of the simpler word-forms in this category.

74. **Sinews.** The word for "sinews," āqki'nk·ā'tlk·ā'enām, is of uncertain etymology. The radical seems to be *k·atlk·ā,* with the particle *kin.*

75. **Skin.** The general term for the "skin" (of animals, man, etc.) is āqkō'ōktlā'enām, of which the radical is *ōktlā,* or *tlā.*

76. **Skull.** The word for "skull," ā'qktlāmtlā'kenām, is derived from the radical for "head," *tlām,* with the addition of another radical-particle, *tlāk.* The word for "turnip" is identical with that for "skull," possibly on account of some fancied resemblance between the two objects.

77. **Sole.** The term for "sole of the foot," āqkō'ktlāktlē'kenām, contains the radical *tlēk,* "foot," and agrees in its first part with the word for "palm" (perhaps āqkō''ktlā = "skin").

78. **Sweat.** The word for "sweat," ā'qk·āk·ō'wōm, seems to contain the term for "belly," with the particle *k·ā;* but the former does not appear in the corresponding verb, e.g., nū'k·ākō'inē, "he perspires much." So the radical of the word is rather *k·ākō.* The "hot bath," or "sweat-house" (wisē'yātl), is not named from this word for "sweat."

79. **Tail.** The word for "tail of an animal" is āqk·ā'tenām (radical *k·āt*); for "tail of a fish," āqki'nkāk·ātē'enām; for "tail of a bird," āqki'nk·ōmā'enām, or āqkinū'k·ōmā'enām. The second word for "tail of a fish" is formed from the radical *k·āt* by means of the particles *kin* and *k·ā.* The radical of the word for "tail of a bird" seems to be *k·ōmā.* The word for "bob-tail" is k·ā'ntsū. The word for "tailless" is tlitk·ā'tinē (i.e., "without tail it is").

80. **Teeth.** The general term for "tooth" is ā'qk·ōnā'enām (radical *k·ōnān*). For actions performed "with the teeth" there is a special particle, *qa*(*n*), used thus: i'tqanē, "he bites" (literally, "he does with the teeth"); k·asmi'nqan, "to break with the teeth." The word for "to chatter" (i.e., teeth), gāk·ū'nanhō'mēk, contains the radical for "tooth," with the verbal *-mēk,* indicative of "noise." The word for "to chew," gāktshātl, is not related.

81. **Temple.** The general term for the "temple" of the head is āqkūqōpā'kenam. See **Heel.**

82. **Testicles.** The word for "testicles," ăqkŏtlă'tsenăm, has for radical *ŏtlats*, or *tlāts*, with the particle *kŏ*. The word for "a castrated bull" is k·ākŏ'tlāts (literally, "no testicles").

83. **Thigh.** The general term for "thigh" is ā'qkiyē'nik. From this, one of the Kootenay tribes, the Indians of Lake Pend d'Oreille, gets its name of Ā'qkiyē'nik, in reference apparently to some sort of "leggings" worn by them.

84. **Throat.** The word for "throat," ă'qktlūmă'enăm (radical *tlūmă*), forms the basis of the terms for "a cough," kŏ'tstlūmă'enăm, etc. The word for "to swallow," nū'k·ōră'tē, is not related. The word for "thirsty" (nōkōnōktlūmă'enē, "he is thirsty") may contain the radical *tlūmā*, "throat."

85. **Thumb.** The word for "thumb," t'ōtsă'kenăm (radical *t'ŏtsăk*), is one of the few terms in this category which do not carry the prefix *ăq-*, or *ăqk-*.

86. **Toes.** The general term for the "toes" is ă'qkitsk·ă'k·emă'enăm (radical *itsk·ă'k·emă*; here the *its* is determinative particle, so the ultimate root is *k·ă'k·emā*), which is constructed similarly to the word for "fingers." Another term for "toes" is ăqki'nk·ātli'kenăm (radical *k·ātlīk*, possibly based on *tlēk*, "foot," with particle *k·ă*). The word for "big toe" is gă'tlemă'tskăk·mă''k·enăm, which seems to mean "large toe." The other toes are named somewhat as the fingers.

87. **Tongue.** The word for "tongue," wă'tlōna'kenăm (radical *watlonak*), is another of the few words of this category which do not have the prefix *ăq-*, or *ăqk-*. The word for "to lick" (nitlta'qinĕ, "he licks," radical *itltaq*) is not related to the term for "tongue."

88. **Uvula.** The term for "uvula" is ta'tkă, one of the simpler words of this category, without *ăq-* or *ăqk-*.

89. **Vein.** The word for "vein," ă'qkōtlk·ă'enam (radical *kōtlk·ă*, perhaps *kō-tl-k·ā*), is not at all related to the word for "blood," wă'nmū.

90. **Wart.** The word for "wart," ā'qkōtlū'p'mākū'enăm, is of uncertain etymology.

91. **Windpipe.** The word for "windpipe," ăqkū'wăēkă'enăm, seems related to kā'kūwas, "to breathe."

92. **Wrist.** Besides the general term ăqk·ana'kenăm, or ăqk·ă'nkană'kenăm, applied to all the "bony joints" of the body, there are in Kootenay other words for "wrist;" viz., ăqki'nk·ātaptsi'tenăm, ăqkŏ'yikă'kenăm. The former is closely related to ă'qkinū'ktaptsi'-

tenām, "elbow," and signifies probably "end (or point) of the fore-arm," in corresponding fashion.

The alphabet used in this article is that employed by the writer in his report on the Kootenay, published in the Report of the British Association for the Advancement of Science, for 1892.

The words discussed above illustrate the general character of the Kootenay language, which favors terms as composite as those for "chin," "crown of the head," "elbow," "nape of the neck," "shoulder," etc., all of which, however, seem to be built up in a very simple way from radicals, particles, prefixes, suffixes, etc. Most of the names in the list contain the prefix *āq-*, or *āqk-*, occurring in several hundred Kootenay words (its exact significance is not known); and the indefinite or generic suffix *-nām*, which has the force of "somebody's," corresponding thus to our indefinite article *a* in some respects: āqktlā'mnām thus means "head of somebody," "a head," "head." Some of the names, apparently, are commonly used with the suffix *-nām*, but not the prefix *āq-;* as, for example, the word for "tongue," wā'tlō-nā'kenām. Several appear to be generally employed with the prefix *āq-*, but without the suffix *-nām*. Such, for instance, are the words for "belly," "bladder," "excrement," "fat," etc. Certain others have neither the prefix *āq-* nor the suffix *-nām*. Some of these appear to be briefer and less composite; e.g., wā'nmū, "blood;" māk, "bone;" ātlgas, "brain;" tsō'ō, "milk;" ētltātl, "shoulder-blade;" ta'tkā, "uvula." These stand out against the longer composite names of some of the other parts of the body. Somewhat longer are the terms for "liver," "kidney," etc., belonging in the same class. A few words, like ā'qkitsk·ānā'mkē, "ankle," and yā'kāk·āntlā'tinā'mkē, "shoulder," are built up by means of the instrumental *-kē*, or the combination prefix-suffix (instrumental) *yā . . . kē*, "that by means of which," "that which." This prefix-suffix is employed in many names of implements, instruments, etc.

Many of the radicals, stripped of affixes and determinative particles, appear quite simple in form: thus, *wī*, "heart;" *qō*, "body;" *tlāt*, "arm;" *tlāk*, "back;" *wōm*, "belly;" *k'pūk*, "rump;" *k·ōāt*, "ear;" *k·tlētl*, "eye;" *qāi*, "fingers;" *ūkp*, "finger-nails;" *tlēk*, "foot;" *k·ōwāt*, "hair;" *k·ēi*, "hand;" *tlām*, "head;" *tsāk*, "leg;" *k·ū*, "nose;" *tlā*, "skin;" *k·āt*, "tail;" *k·ōnān*, "tooth;" *tlāts*, "testicles;" *tlūmā*, "throat;" etc. To several of the radicals a particle *ō*, or *ū*, is attached; e.g., in the terms for "testicles," "skin," "end of nose," etc.

In the composition of the longer words, certain particles, *k·ā*, *kō*, *kin*, are used. Of these, *k·ā* signifies "opening, aperture;" *kin*, "point, extremity, end;" *kō*, sometimes "inside, interior." The exact meaning of some of the other determinative particles is not clear.

Another interesting feature of the Kootenay language is the existence of particles expressing the idea "to do with the hand," "to do with the foot," "to do with the back," "to do with the teeth," etc. Noticeable also is the lack of any such correlation as often exists (cf. English) between the words for "blood" and "bleed," or (cf. Ojibwa) between those for "blood" and "red." The development of the use of the radicals of the words for "body" and "heart" to form terms expressing physical and mental conditions (cf. the Mosquito language of Central America), etc., is an interesting psychological fact.

THE RIVAL CHIEFS.

A KWAKIUTL STORY

RECORDED BY GEORGE HUNT.[1]

SYNOPSIS.

FAST-RUNNER and **THROW-AWAY** are chiefs of the Kwakiutl, and close friends. The latter makes up his mind to give a feast of salmonberries, and sends his four attendants to invite his own clan and his friend Fast-Runner. After Fast-Runner has been assigned his seat and the feasting-songs have been sung, four canoes that Throw-away has been careless enough not to have cleaned out are brought in, filled with berries and boxes of grease, and put before Fast-Runner and his clan and three other chiefs. Fast-runner, instead of proceeding to eat of the food, lies down on his back and covers his face with a blanket, while his fellow-clansmen, observing that he is displeased, follow his example. After a long silence, Fast-Runner's attendant arises and tells his fellowmen of the dirty treatment accorded their chief, in that Throw-away has not washed out the canoes before using them as food-receptacles. Throw-away rebukes his friend for his haughtiness; Fast-Runner expresses unwillingness to eat of the dirty food, and, to show his superiority in wealth, sends for his copper "Sea-Monster" and puts it into the fire. Throw-away retaliates by putting in his own copper, "Looked-at-askance," in order to "keep the fire burning." Fast-Runner meets this by sending for a second copper, "Crane," and putting this also into the fire so as to "smother it." Throw-away, not possessing another copper, tries to borrow one from his fellow-clansmen, but is unable to do so. Hence he virtually confesses himself beaten by his rival, and his fire "has died out." The guests thereupon leave.

The following day Fast-Runner returns the feast, and sends his attendants to invite his friend Throw-away. The latter is assigned his seat, and the feasting-songs are sung. Then four feasting-dishes are filled with crab-apples, wild cherries, and grease, and put before Throw-away and his fellow-clansmen. Throw-away does not eat, but returns his friend's insult by saying that he will not taste the dirty food offered, and then sends his four attendants home. They soon come back, however, with the copper "Day-Face," which Throw-away puts into his rival's fire. Fast-Runner arises and says that his fire has been "extinguished." He then puts on the recklessness of the Fool-Dancer, and, with his father-in-law's leave, sends his attendants to the latter's house to break four of his new canoes. They return with the fragments. Fast-Runner puts these on the fire so as to "build it up" again, and wishes by the heat to drive away his friend, who is lying on the ground near the fire. The intense heat causes Throw-away great physical pain, but he does not flinch and holds his ground. After the blaze has begun to die out, he gets up and eats of the crab-apples, thus showing that his rival's deeds have not in the least affected him. Then the guests of Fast-Runner are directed by his attendants to leave, and they do so.

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[1] [The text as originally written down by Mr. Hunt has been kindly revised by Mr. EDWARD SAPIR, whom I have to thank for having changed the system of spelling to that now adopted by Professor Boas in his Kwakiutl Texts of the Jesup Expedition Publications. For the explanation of letters and sounds see Vol. III of that series, p. 5. — EDITOR.]

Some time later Throw-away secretly informs his fellow-clansmen of his intention to give a winter-dance in order to outdo his rival. Fast-Runner, however, hears of this, and determines to do likewise. As preparatory to the winter ceremonial, Throw-away has his son and daughter "disappear," whereupon Fast-Runner, not to be behindhand, causes his two sons and two daughters also to "disappear." At the approach of the ceremonial period, Throw-away has a Sea-Monster mask carved out for his daughter, who is to be a war-dancer, and a Grisly-Bear mask for his son. The "disappeared" children of Throw-away are "caught," songs are sung, the Sea-Monster and Grisly Bear perform the proper ceremonies, and a canoe is given to Fast-Runner.

Fast-Runner then begins with his winter-dance and begs his people to stand by him in his attempt to shame Throw-away. The following day all are invited into his house to eat, whence they repair to the singing-house. Here they sing and dance continuously through the night. The next day the "disappeared" Grisly Bears and warriors of Fast-Runner are sent for and brought in four canoes. A slave is scalped, pursued, and butchered by the Fool-Dancers, Cannibals, and Grisly Bears, and his body eaten up by the Cannibals. Fast-Runner's recklessness in sacrificing a slave shows him to be a richer man than Throw-away, who is now clearly outdone. Fast-Runner gives Throw-away his slave's scalp. In the evening the Grisly Bears are "tamed" and the two war-dancers sing their secret songs. The attendant asks one of the war-dancers what she wishes done to her, and she requests that they be put into the fire. So the war-dancers are tied down on boards, a high wall of fire-wood is put about the fire, and the daughters of Fast-Runner are ostensibly to be put inside to be burned. Two slaves are adorned just like the true war-dancers and tied down on boards. These are to be burned as substitutes for the war-dancers. They are told not to scream when put into the fire, as they will be struck dead if they do so, but otherwise will come back to life after four days. The slaves acquiesce and are burned to death, while the real war-dancers are hidden, being supposed to have been put into the fire. After four days they pretend to revive, the ashes of the two slaves having been preserved in boxes. Now Throw-away is completely worsted.

Throw-away goes off to fight against the Nootka; but he and all his men are slain by them, only one man surviving to tell the tale. "This," says Mr. George Hunt, "is the true story of the two chiefs who were true friends in the beginning, and turned out to be worst enemies at the end."

G·ō′kulaˤlaēda	g·ā′lāsa	Kwā′g·ułē	lāx	Q̣ā′logwisē.	Wä,
They lived, it is said, the	first of the	Kwakiutl,	at	Crooked-Beach.	Well,

laᴇ′mˤlāwīsē	ˤnā′mōk·âlēda	g·ī′gamaˤyasa	Sᴇ′nʟ!ᴇmēxa
now it is said	they were friends to each other, the	chief of the	Sun tribe

Tsᴇxˤwī′dᴇx·ʟuła	ʟ̣ōˤ	g·ī′gamaˤyasa	ʟō′yalaławaxa	Ts!ᴇx-
named Fast-Runner (long ago)	and	the chief of the	Hair-turned-up-in-Front tribe	named

ˤī′dᴇx·ʟuła.	Wä,	laᴇ′mˤlāwīsē	â′laᴇl	łā′x̣ulap!a.	Wä,
Throw-away (long ago).	Well,	then it is said	really	they loved each other.	Well,

laᴇ′mˤlāwīsē	la	g̣ā′ła	la	ˤnā′mōk·âla.	Wä,	ˤnā′x̣waᴇmˤlaē
then it is said	now	long time		they were friends to each other.	Well,	all, it is said,

q!ā′ˤlap!xēs	ˤnēˤnâ′qaˤē.
they watched (knew) each other's	thoughts (secrets).

Wä,	laᴇ′mˤlāwīsēda	g·ā′lāsa	Kwā′g·ułe	x̣u′lsaxa	ˤnᴇ′mxsa
Well,	then it is said the	first of the	Kwakiutl	were downcast	one

ˤnā′la.	Wä,	laᴇ′mˤlāwīsē	Ts!ᴇxˤī′dē	hā′nak·axēs	ˤnᴇmō′kwē,
day.	Well,	then it is said	Throw-away	asked leave of his	friend

lāx	Tsᴇxˤwī′dē.	Wä,	laᴇ′m	nē′łasēs	k!wē′lats!ēnēʟasa
of	Fast-Runner.	Well,	then	he told of his	going to be a place of giving a feast with

q!ē'nᴇmē	q!a'mdzᴇkwa	lā'xa	g·ā'la	Kwā'kug·uła.	Wä,
many	salmon-berries	to the	first	Kwakiutl (clans).	Well,

hē'x·ᶜīdaᴇmᶜlā'wīsē	Tsᴇxᶜwī'dē	ᶜnĕ'k·a:	"ᶜya,	qāst,	laᶜmō'x
right away, it is said,	Fast-Runner	said,	"O	friend!	Now that

ĕ'k·ōs	wā'łdᴇmaqōs	qa	ĕ'k·!ēxᶜīdēsᴇns	g·ō'kulōtēx	qaxs
good your	your word,	so that	may be happy our	tribe,	for

xᴇ'nʟᴇlaēx	x̣u'lsa,"	ᶜnē'x·ᶜlaē.	Wä,	hē'x·ᶜidaᴇmᶜlā'wisē
very	they are downcast,"	he said, it is said.	Well,	right away, it is said,

Ts!ᴇxᶜī'dē	axk·ā'laxēs	aᶜyî'lkwē	qa	ē'x̣ᶜwītsᴇᶜwēsēs	g·ō'kwē.
Throw-away	asked his	attendants	that	they sweep out his	house.

Wä,	g·î'lᶜᴇmᶜlā'wisē	gwāł	ē'kwasᴇᶜwa	g·ō'kwaxs	laē'da
Well,	as soon as, it is said,	finished	was swept out the	house when	then the

aᶜyî'lkwē	mō'kwa	yaē'łtsᴇmtsa	dᴇnᴇ'mē.	Wä,	lā'x·daᶜxᵘ-
attendants	four	hung about their waists the	cedar-bark (belts).	Well,	then they,

ᶜlaē	ʟē'ᶜlālaxa	Kwā'kug·ułē	qaēs	g·ī'gamaᶜē	Ts!ᴇxᶜī'dē.	Wä,
it is said, went	to invite the	Kwakiutl	for their	chief	Throw-away.	Well,

g·î'lᶜmēsē	g·āx	ᶜwē'laēʟēxs	la'ē	axk·!ā'lē	Ts!ᴇxᶜī'dāxēs
as soon as they	came	all in, when	then	asked	Throw-away his

aᶜyî'lkwē	qa	läs	ē'tsēᶜstasᴇᶜwēs	ᶜnᴇmō'kwē	Tsᴇxᶜwī'dē.	Wä,
attendants	that	they go	call again his	friend	Fast-Runner.	Well,

hē'x·ᶜidaᶜmēsa	mō'kwē	aᶜyî'lkwa	ē'tsēᶜstaq.	Wä,	g·î'lᶜmēsē	g·ā'xē
right away the	four	attendants	again called him.	Well,	as soon as	came

Tsᴇxᶜwī'dē	g·ā'xēʟa,	la'ē	Ts!ᴇxᶜī'dē	axk·!ā'laq	qa	läs
Fast-Runner	came into house,	then	Throw-away	asked him	that	he go

k!wā'g·aᶜlīł	lā'xa	ᶜnᴇqē'walēłasēs	g·ō'kwē.	Wä,	g·î'lᶜmēsē
sit down in the house	at the	rear of his	house.	Well,	as soon as

k!wā'g·aᶜlīłᴇxs	la'asa	k!wē'łē	k!wē'ᶜlāla	dᴇ'nxᶜīda,	yî'sa
he sat down in the house, when	then the	feasters	sang feasting-songs	began to sing	with

mō'sgᴇmē	k!wē'lāᶜlayō	q!a'mq!ᴇmdᴇma.	Wä,	g·î'lᶜmēsē	gwāł
four	means of feasting	songs.	Well,	as soon as they	finished

k!wē'ᵋlālēda	k!wē'łaxs	la'ē	ʟᴇlē'ʟ̣ᴇmēda	mō'ts!aqē	x̣wā'x̣u-
to sing the	feasters, when	then they	were brought into house	four (long)	small

x̣waguma.	Wä,	laᴇ'm	hāwē'xaᴇm	ts!ō'xwᴇg̣ᴇntsᴇᵋwaxs	la'ē
canoes.	Well,	then	never	they were washed inside when	then they

qup!ā'łaxsᴇlāyōwa	q!ē'nᴇmē	q!a'mdzᴇkᵘ	lāq.	Wä,	lā-
were used for pouring in	many	salmon-berries	into them.	Well,	

ᵋmē'sē	ᵋna'x̣waᴇm	ᵋnāᴇ'ngōyâlēda	mō'ts!aqē	x̣wā'x̣ux̣wagumaxa
then	all	half full the	four (long)	little canoes

q!a'mdzᴇkwē.	Wä,	lā'ᵋlae	axᵋē'tsᴇᵋwa	mō'sgᴇmē	dᴇ'ngwats!ē
salmon-berries.	Well,	then it is said	were taken	four (round)	grease-boxes

ʟ!ē'ᵋna	qaᵋs	k!u'nq!ᴇg̣ᴇmaēda	ᵋnā'łᵋnᴇmsgᴇmē	lā'xa
olachen-oil	so that	were put in the	each one (box)	into

ᵋnā'łᵋnᴇmts!aqē	x̣wā'x̣waguma.	Wä,	g·î'lᵋᴇmᵋlā'wisē	gwāł
each (long)	small canoe.	Well,	as soon as, it is said, they	finished

k!u'nqasōxs	la'ē	ʟᴇ'lʟᴇlbᴇntsᴇᵋwa	x̣wā'x̣wagumē	qaᵋs	lē
were put in, when	then it	was lifted up at each end the	small canoe,	so that they	went

ha'nx·dzamōlēlᴇm	lāx	Tsᴇxᵋwī'dē	ʟ̣ᴇᵋwē's	ᵋnᴇᵋmē'mōtē.	Wä,
was put down in front	at	Fast-Runner	and his	clan.	Well,

lā'ᵋlaēda	ᵋnᴇ'mts!aqē	ha'nx·dzamōlēlᴇm	lāx	Ō'dzēᵋstalisē
it is said the	one (canoe)	was put down in front	at	Wrong-around-World

ʟ̣ᴇᵋwē's	ᵋnᴇᵋmē'mōta	Maa'mtag·ila,	yîxs	Sᴇ'nʟ!ᴇmaē	ᵋnᴇᵋmē'-
and his	clan	Maa'mtag·ila,	while	Sun tribe the	

mōtas	Tsᴇxᵋwī'dē.	Wä,	lā'ᵋlaēda	ᵋnᴇ'mts!aqē	x̣wā'x̣wagum
clan of	Fast-Runner.	Well,	it is said the	one (long)	small canoe

ha'nx·dzamōlēlᴇm	lā'xa	G·ē'xsᴇmē	lāx	g·ī'gamaᵋyasē	K·î'm-
was put down in front	at the	Chiefs (clan)	to	their chief	Met-by-

k·ᴇqᴇwēdē.	Wä,	lā'ᵋlaēda	ᴇ'lxʟ̣aᵋē	ha'nx·dzamōlēlᴇm	lāx
(Chiefs).	Well,	it is said the	last one	was put down in front	at

ʟ!ā'qwag·ila	yîxs	g·ī'gamaᵋyasa	Lā'alaxsᴇnt!ayō.	Wä,
Copper-Maker	when he was	chief of the	Breakers-(of-all-Tribes).	Well,

g·î'lᵋᴇmlā'ᵋwisē	ᵋwī'lg·aᵋlīłᴇxs	la'ē	Tsᴇxᵋwī'dē	â'ᴇm
as soon as, it is said,	all had been put on floor,	then	Fast-Runner	only

t!ē'x·bᴇtalēł	qaᵋs	ᵋnax̣u'mdēsēs	ᵋnᴇx̣ᵋuna'ᵋē	ʟ!ā'ᵋya.	Wä,
lay down on his back in his seat	and he	covered his face over with his	blanket	(of) black bear.	Well,

laᴇ'mᵋlāwisē	Ts!ᴇxᵋī'dē	axk·!ā'laxēs	aᵋyî'lkwē	qa	wä'xēsēxa
then it is said	Throw-away	asked his	attendants	that	they tell to go ahead the

k!wē'łē	qa	wä'g·ēs	yō'sᵋītsēs	k·ā'k·ᴇts!ᴇnaqē,	qaxs
feasters	that	they should	eat with spoons with their	spoons,	for

ᵋnā'x̣wamaēda	k!wē'łē	qē'qᴇp!ᴇpᴇlaxēs	k·ā'k·ᴇts!ᴇnaqē.	Wä,
all the	feasters	carried in the folds of their blankets their	spoons.	Well,

â'ᴇmᵋlā'wisa	ᵋnā'x̣wa	k!wēł	dō'qwāłax	Tsᴇxᵋwī'dē,	qaxs
only, it is said,	all the	feasters	kept looking at	Fast-Runner,	for they

ᵋmā'łt!āīłmaaqēxs	yā'x·sᴇᵋmaē	nâ'qaᵋē	lā'xēs	k!wāᵋē'lasē.
recognized that	bad the	heart	at his	place of sitting on floor.

Wä,	â'ᴇmᵋlāwisa	k!wē'łē	la	ᵋnā'x̣waᴇm	la	t!ē'x·alīła	ō'gwaqa.
Well,	only, it is said, the	feasters	then	all	now	lay down on their backs	also.

Wä,	hē'lat!aᵋla	gaē'łᴇxs	la'ē	ʟ̣ā'x̣ulīłē	aᵋyî'lkwas
Well,	that, however, it is said,	long on floor,	then	stood up the	attendant of

Tsᴇxᵋwī'dē.	Wä,	lā'ᵋlaē	yā'q!eg·aᵋła.	Wä,	laᴇ'mᵋlā'wisē
Fast-Runner.	Well,	it is said he	spoke.	Well,	then it is said he

ᵋnē'k·a,	lā'xēs	k!wē'łᵋwᴇōtē :	"ᵋya,	g·ō'łg·ᴇkulōt,	wē'g·a
said	to his	fellow-feasters,	"O	fellow-tribesmen !	go on

dō'qulaxg·în	g·ī'gamēk·,	lā'xg·a	gwaē'lasg·as	lā'xōx
see this our	chief here	at this	his manner on floor	at this

g·ō'kwasōs	ᵋnᴇmō'kwōx	Ts!ᴇxᵋī'dēx,	yîxs	k·!ē'sēk·	ᵋnēx·
house of his	friend here,	Throw-away,	for he	not	says

qaᵋs	ha'ᵋmx·ᵋīdēxwa	ᵋmō'ᵋmxsēlayōxsa	ᵋmō'xulax.	Wä'lax·dē
that he	eat these	dirty things of this	dirty (chief).	Could not he

lā'ʟōx	ts!ō'xułᴇxsaxēs	łē'łōq!ulēła	x̣wā'x̣ux̣wagumaxs
have gone	he washed out his	feasting-dishes	small canoes when

k·!ē'sᵋmēx·dēx	gu'xałᴇsᴇlasa	q!a'mdzᴇkwē	la'qwaq,	qaxs
not	he began to pour the	salmon-berries	into these,	for

hë'mᴇnāłaᵋmä'axᴇl	t!ē'lats!ēxa	t!ē't!ᴇlēma	(hë'ᴇm	gwôᵋyō'sēda
they were all the time	soaking-receptacles for that	what was soaked	(that is	what he meant the

p!ᴇ'ʟasdē	ʟ̣ᴇ'ᵋwa	mä'leqasdē	ʟ̣ᴇ'ᵋwa	mō'qwasdē).		Wä,	yō'ᵋmēts
dried halibut-fins	and the	dried halibut-heads	and the	(?)	).	Well,	this is your

gwôᵋyō's	qa	yō'sasōsō'xda	q!wä'łōbᴇsē	lä'xg·ēxs	lä'xōs
wish	that	be eaten with spoons the	soot	now inside	in

łēłō'qulēłaqōs	Ts!ᴇxᵋī'd,"	ᵋnē'x·ᵋlaē.	Wä, lä'ᵋlaē	hë'x·ᵋīdaᵋmē
your feasting-dishes,	Throw-away,"	he said, it is said.	Well, it is said	immediately

Ts!ᴇxᵋī'dē	ʟ̣ä'x̣ulīła.	Wä,	laᴇ'mᵋlaē	k·!ēs	ᵋnē'x·ts!ōts
Throw-away	got up in the house.	Well,	then, it is said,	not	he said

wä'łdᴇma	lä'xēs	aᵋyî'lkwē.	Wä,	lä'ᵋlaē	ᵋnē'k·a:	"ᵋya,	qäst,
word	to his	attendants.	Well,	it is said	he said,	"O	friend!

gwä'łdzâs	xᴇ'nʟᴇl	ʟᴇ'mlᴇmq!ä'lōʟ.	Hä'aqōs	gwēx·s	q!ē'q!ädē
don't you	very	talk proudly.	That is you	as if you	much having

qa'ēs	wä'łdᴇmōs.	Wä'g·adzâ	â'ᴇm	läxs	gwä'ēxsdaasaōs,"
on account of your	word.	Well, go on	just	to	your wish,"

ᵋnē'x·ᵋlaē.	Wä,	hë'x·ᵋīdaᴇmᵋlä'wisē	Tsᴇxᵋwī'dē	ʟ̣ä'x̣ulīła.	Wä,
he said, it is said.	Well,	immediately, it is said,	Fast-Runner	got up in the house.	Well,

lä'ᵋlaē	ᵋnē'k·a:	"ᵋya,	qäst,	Ts!ᴇxᵋī'd,	k·!ē'sᴇn	ᵋnē'x·	qᴇn
it is said	he said,	"O	friend	Throw-away!	not I	say	that I

ha'ᵋmapēxa	ᵋmä'ᵋmōxsēlaqwē	haᵋmg·iᵋlä'yō	g·ä'xᴇn,	ᵋya
eat the	dirty things	given for food	to me,	O

ᵋmō'xul.	Wä,	laᵋmē'sᴇn	ᵋmä'ᵋmōxwälaʟōʟ.	Â'laᵋmēg·in
dirty man!	Well,	and now I	shall meet your dirty deed.	Truly I am

q!ē'q!ädaga'ᵋwayōs,"	ᵋnē'x·ᵋlaēxs	la'ē	ᵋyä'laqasēs
much having among you,"	he said, as	then he	sent his

aᵋyî'lkwē	qa	läs	axᵋē'dᴇx	ʟ!ä'qwäsē	Ts!ē'gēsē.	Wä,
attendants	that	they go and	get	his copper	Sea-Monster.	Well,

g·î′lᵋᴇmᵋlā′wisē	g·āx	hō′g̣wēʟēda	mō′kwē	aᵋyî′lx̣ᵘsēxs	la′ē
as soon as, it is said,	came	went into house the	four	attendants,	then they

ts!âs	lāx	Tsᴇxᵋwī′dē.	Wä,	lā′ᵋlaē	Tsᴇxᵋwī′dē	dā′x·ᵋīdxēs
gave it	to	Fast-Runner.	Well,	then it is said	Fast-Runner	took his

ʟ!ā′qwa.	Wā,	lā′ᵋlaē	qā′sᴇlīł	qaᵋs	lā	ʟā′yabōts	lāx
copper.	Well,	then it is said he	walked in house,	and he	went	pushed it under	to the

lᴇqā′ᵋwālīłas	g·ō′kwasēs	ᵋnᴇmō′kwē.	Wā,	laᴇ′m	k·!î′lxas	lā′xa
fire in middle of the floor of the	house of his	friend.	Well,	then	he put out fire with it	to

k!wē′lasē.	Wä,	hē′x·ᵋidaᴇmᵋlā′wisē	Ts!ᴇxᵋī′dē	ō′gwaqa	axᵋē′dxēs
his feast.	Well,	immediately, it is said,	Throw-away	also	took his

ʟ!ā′qwē	ʟ!ᴇsaxᴇlā′yō.	Wā,	laᴇ′mᵋlāxaa′wisē	ʟā′yabōts	lā′xēs
copper	Looked-at-askance.	Well,	then it is said also he	pushed it under	to his

k!wē′lasdᴇma	lᴇg̣wē′ła.	Wā,	laᴇ′mᵋlaē	x·ā′x·īq!as	lā′xēs
feast-place	fire.	Well,	then it is said he	tried to burn it	in his

k!wē′lasdᴇma	lᴇg̣wē′ła	qa	k·!ē′sēs	k·!î′lxᵋēda.	Wā,
feast-place	fire	in order that	it should not	die out.	Well,

laᴇ′m	ᵋnᴇma′x·ᴇs	ʟ̣ōᵋ	lᴇqwī′lās	lᴇqwā′,	yî′sēs	ʟ!ā′qwax·dē.
then	just as if	with	he made fire with	fuel,	with his	past copper.

Wā,	lā′ᵋlaē	Tsᴇxᵋwī′dē	ē′t!ēd	ᵋyā′laqasēs	mō′kwē
Well,	then it is said	Fast-Runner	again	sent his	four

aᵋyî′lkwa	qa	lās	axᵋē′d	ᵋnᴇ′msgᴇmē	ʟ!ā′qwasē	Adᴇ′mgulē.
attendants	that	they go and	take	one (other) (round)	his copper	Crane.

Wā,	g·î′lᵋᴇmᵋlaxaā′wisē	g·ā′xdaᵋxᵘ	hō′g̣wēʟᴇlaxs	la′ē	ts!âs
Well,	as soon as again, it is said, they	came	went into house, when	then they	gave it

lā′xēs	g·ī′g̣amaᵋē	Tsᴇxᵋwī′dē.	Wā,	â′ᴇmᵋlaxaā′wisē	Tsᴇxᵋwī′dē
to their	chief	Fast-Runner.	Well,	only, it is said, again	Fast-Runner

la	ʟā′yabōlēsas	lāx	k!wē′lasdᴇma	lᴇg̣wē′łasēs	ᵋnᴇmō′kwē.
went	pushed it under	to the	feast-place	fire of his	friend.

Wā,	laᴇ′mxaa	k·!î′lxas	lāx	lᴇg̣wē′łasēs	ᵋnᴇmō′kwē.
Well,	then again	he put out with it	to the	fire of his	friend.

Wă,	laᴇ'm	ᵋnᴇma'x·ᴇs	ʟ̣ōᵋ	dzᴇ'mas	lēlaō'xwasa	ʟ!ā'ʟ!ᴇqwa
Well,	then	just as if	with	he covered with	cost of the	coppers

lāx	k!wē'lasdᴇma	lᴇg̣wē'łts	g·ō'kwasēs	ᵋnᴇmō'kwē,	qa
to the	feast-place	fire of the	house of his	friend,	so that

k·!ēō'sēs	x·ī'xsᴇᵋwatsa	lᴇg̣wē'łē.	Wă,	hē'ᵋmēs	lā'g·iłas
it be nothing	being burned by the	fire.	Well,	that is	reason of

ʟ̣ē'gadᴇs	k·!î'lxaxa	lᴇg̣wē'łasa	k!wē'lasē.	Wă,	lā'ʟ̣a	Ts!ᴇxᵋī'dē
having name of	putting out the	fire of the	feast.	Well,	but then	Throw-away

ᵋnᴇma'x·ᴇs	ʟ̣ōᵋ	mō'x·ʟalasēs	ʟ!ā'qwa.	Wă,	laᴇ'm	ᵋmᴇx̣ᵘstᴇᵋwē'sa
just as if	with	he lighted his fire with his	copper.	Well,	then	it is in place of the

ʟ!ē'ᵋna	ʟ̣ᴇ'ᵋwa	lᴇqwa'.	Lā'g·iłas	ō'gwaqa	ʟasʟā'lasēs
olachen-grease	and the	fuel.	That is reason of	also	pushing on the fire his

ʟ!ā'qwa,	qa	k·!ē'sēs	k·!î'lxᵋēdē	k!wē'lasdᴇmās	lᴇg̣wē'łas
copper	for	its not	dying out the	feast-place	fire of

g·ō'kwas.	Wă,	g·î'lᵋᴇmᵋlāwisē	Tsᴇxᵋwī'dē	ʟā'sʟᴇntsēs
his house.	Well,	as soon as, it is said,	Fast-Runner	pushed on fire his

ʟ!ā'qwa	lā'aᵋlasē	Ts!ᴇxᵋī'dē	dak·!ā'lax	ʟ!ā'qwă	lā'xēs
copper,	then it is said	Throw-away	asked for a	copper	to his

ᵋnᴇᵋmē'mōta	ʟō'yalaława.	Wă,	laᴇ'l	k·!ēō's	ʟ!ā'qwas.	Wă,
clan	Hair-turned-up-in-Front.	Well,	it is said	there was no	his copper.	Well,

laᵋmē'	yā'k·âwē	Ts!ᴇxᵋī'dē	lā'xēq.	Wă,	laᵋmē'	k·!î'lxᴇkwē
then he	was beaten	Throw-away	in that way.	Well,	then	was extinguished

k!wē'lasdᴇmax·dē	lᴇg̣wē'łts	g·ō'kwas.	Wă,	â'ᴇmᵋlā'wisē	la
the past feasting-place	fire of	his house.	Well,	just, it is said,	now

hō'qawᴇlsēda	k!wēł	la'xsdē.	Wă,	laᵋmē'	hăwē'xa	yō'sᵋīd	lā'xa
went out the	feasters	the passed.	Well,	then they	never	ate with spoons	at the

k!wē'ladzᴇm	q!a'mdzᴇkwa.	Wă,	lā'ᵋlaē	Tsᴇxᵋwī'dē	ᵋnēx·	qaᵋs
given in feast	salmon-berries.	Well,	it is said,	Fast-Runner	wished	that he

q!â'łᵋaʟᴇlēx	nâ'qaᵋyasēs	ᵋnᴇmō'kwē	Ts!ᴇxᵋī'dē.	Wă,	laᴇ'mᵋlā'wisē
find out the	thought of his	friend	Throw-away.	Well,	then it is said he

axk·!ā'laxēs	aᶜyi'lkwē	qa	lās	ʟē'ᶜlālax	ʟē'lānᴇmx·dāsēs
asked his	attendants	that they	go and	invite the	ones that had been invited by his

ᶜnᴇmō'kwaxa	ɬᴇ'nsdē.	Wä,	laᴇ'mᶜlā'wisē	aᶜyi'lkwās	ʟē'ᶜlālaq.
friend	the past day.	Well,	then it is said	his attendants	invited them.

Wä,	hē'x·ᶜidaᴇmᶜlā'wisē	g·ā'xēda	ʟē'lānᴇmē	hō'gwēʟa.	Wä,
Well,	immediately, it is said,	came the	invited ones	came into house.	Well,

lē'x·aᴇmᶜlā'wisē	Ts!ᴇxᶜī'dē	k·!ēs	g·ā'xa.	Wä,	laᴇ'mᶜlāwisē
only, it is said,	Throw-away	not	came.	Well,	then it is said

Tsᴇxᶜwī'dē	ᶜyā'laqaxēs	aᶜyi'lkwē	qa	lās	ē'tsēᶜstaq.	Wä,	k·!ē's-
Fast-Runner	sent out his	attendants	to	go and	call him again.	Well,	not,

ᶜlat!a	gē'x·ᶜidēda	aᶜyi'lkwaxs	g·ā'xaē	lā'k·ᴇlax	Ts!ᴇxᶜī'dē.	Wä,
however, it is said,	were long the	attendants when	came	following	Throw-away.	Well,

hē'x·ᶜidaᴇmᶜlā'wisē	Tsᴇxᶜwī'dē	q!ā'x·sīdzēq.	Wä,	laᴇ'mᶜlaē
immediately, it is said,	Fast-Runner	led his feet.	Well,	then it is said he

ᶜnex·	qa	lās	k!wā'g·aᶜlīɬa	ʟ!ā'saliɬasēs	ᶜnᴇᶜmē'mōtē.	Wä,
wished	that	he go and	sit down	outside of his	clan.	Well,

laᴇ'm	maᶜē'maᶜlōkwēda	aᶜyi'lkwās	lāx	wax·sanō'ʟᴇmaᶜyas	lā'xa
then	there were two on each side the	his attendants	at	both sides of him	at the

nᴇx̣wā'ʟāla	lā'xa	lᴇgwē'ɬasēs	g·ō'kwē.	Wä,	g·ī'lᶜᴇmᶜlā'wisē
neighborhood	to the	fire of his	house.	Well,	as soon as, it is said, he

k!wāg·aᶜlī'ɬaxs,	la'as	k!wē'lg·aᶜlēda	k!wē'lasa	k!wē'layāᶜlayu
sat down,	then they	began to sing feast-songs the	feast-giver	there were sung

mō'sgᴇm	q!a'mq!ᴇmdᴇma.	Wä,	g·ī'lᶜᴇmᶜlā'wisē
four	songs.	Well,	as soon as, it is said,

q!wē'ɬᶜēdēda	k!wē'lala	dᴇ'nxᴇlaxs	la'ē	axᶜē'tsᴇᶜwa	tsē-
stopped the	feasters	singing	then	were taken out	crab-

tsᴇ'lwats!ē	mō'sgᴇm	k·!ēk·!i'myaxʟa,	qaᶜs	g·ā'xē	mᴇxā'lēlᴇm
apple boxes	four (round)	boxes,	and they	came	were put down on ground

lāx	maᶜstā'yasa	aᶜwē'ʟᴇlāsa	k!wē'layats!	g·ō'kwa.	Wä,	lā'ᶜlaē
at the	near by to the	inside of door of the	feasting-receptacle	house.	Well,	it is said

ē't!ēd axᶜē'tsᴇᶜwēda mō'sgᴇmē dᴇ'ngwāts!ē ʟ!ē'ᶜna. Wā, lā'ᶜlaē
again were taken out four (round) grease-boxes (of) olachen-grease. Well, it is said

axᶜē'tsᴇᶜwēda ma'ᶜłᴇx·ʟa sī'siuł łō'qulēła. Wā, hē'ᴇmᶜlā'wisa
were taken out two on it double-headed serpent feasting-dishes. Well, that, it is said,

ᶜnᴇmē'x·ʟa nā'nā łō'qulēła. Wā, hē'ᴇmᶜlā'wisa ᶜnᴇmē'x·ʟa
one on it grisly-bear feasting-dish. Well, also, it is said, one

nā'nē łō'qulēła. Wā, hē'ᴇmᶜlā'wisa ᶜnᴇmē'x·ʟa
grisly-bear feasting dish. Well, also, it is said, one

ā'ʟanᴇm łō'qulēła. Hᴇmᶜwēx·ʟagō la'ē łō'ᴇlqulēłas
wolf feasting-dish. That is all then the feasting-dishes of

Tsᴇxᶜwī'dē. Wā, laᴇ'mᶜlāwisē guxts!â'lasōᶜsa t!ᴇ'lsē. Wā,
Fast-Runner. Well, then it is said they were poured into with wild cherries. Well,

laᴇ'mᶜlāwisē naᴇ'nguyâ'lēda łō'ᴇlqulēłaxa tsᴇlxᵘ,
then it is said were half full the feasting-dishes of crab-apples,

la'ē k!u'nq!ᴇqasōᶜsa ʟ!ē'ᶜna. Wā, laᴇ'm qō'qut!as.
then they were poured into with olachen-grease. Well, then they were full with it.

Wā, laᴇ'mᶜlāxaa'wisē hē'ᴇm g·il k·ā'x·ᶜītsōᶜsēs ᶜnᴇmō'kwē
Well, then also, it is said, that first it was set before his friend

Ts!ᴇxᶜī'dē. Wā, g·ī'lᶜᴇmᶜlā'wisē ᶜwī'ᶜla k·ā'x·ᶜītsa
Throw-away. Well, as soon as, it is said, all were set before the

łō'ᴇlqulēłaxs la'ē aᶜyī'lkwās wā'xaxa k!wē'łē qa
feasting-dishes, when then his attendants urged the feasters that

wā'g·ēs yō'sᶜēda. Wā, hē'x·ᶜīdaᴇmᶜlā'wisē Ts!ᴇxᶜī'dē Ḷā'x̣ulīła.
they go ahead eat with spoons. Well, immediately, it is said, Throw-away stood up in the house.

Wā, lā'ᶜlaē yā'q!eg·aᶜła. Wā, lā'ᶜlaē ᶜnē'k·a: "ᶜya, qāst,
Well, it is said he spoke. Well, it is said he said, "O friend!

k·!ē'sēg·în hē g·ā'xīłē qᴇn p!axᶜaʟᴇ'lē lā'xōs k!wē'lādzᴇmaqōs,
not I that reason of coming that I should taste of your your feasting-objects,

yū'ʟaxs â'laaqōs mō'xula bᴇgwā'nᴇma, qāst, qaxs hāwē'xaaqōs
you that really are dirty man, friend, since you never

ts!ō'xug·îndxᴇn	haᵋmaā'ts!ēx,	yî'xōs	łēłō'qulēłaqōs,"
washed inside my	food-receptacle	your	feasting-dishes,"

ᵋnē'x·ᵋlaēxs	la'ē	ᵋyā'laqasēs	mō'kwē	aᵋyî'lkwa	qa	lās	dādag·îlī'łᴇla	
he said, it is said, when	then he	sent out his	four	attendants	that	they go and	take out (some-	thing)

lāx	g·ō'kwas.	Wä,	hë'x·ᵋīdaᴇmᵋlā'wisē	lā'x·daᵋxwa.	Wä,
in	his house.	Well,	immediately, it is said, they	went out.	Well,

k·!ē'sᵋlat!a	gā'łaxs	g·ā'xaē	ē't!ēd	hō'gwēʟa.	Wä,
not, it is said, however,	long when they	came	again	they went into house.	Well,

laᴇ'mᵋlaē	dāg·î'lqᴇlaxa	ʟ!ā'qwa	ᵋnᴇ'lgᴇmāla.	Wä,	hë'x·-
then it is said they	carried in hand the	copper	Day-Face.	Well,	im-

ᵋīdaᴇmᵋlā'wisē	Ts!ᴇxᵋī'dē	dā'x·ᵋīdxa	ʟ!ā'qwa	qaᵋs	ʟā'ya-
mediately, it is said,	Throw-away	took the	copper	and he	shoved

bōlēsēs	lāx	lᴇgwē'łasa	k!wē'lasē.	Wä,	laᴇ'm	ō'gwaqa
it under	to the	fire of the house of the	feast-giver.	Well,	then	also he

k·!î'lxax	lᴇgwē'łasa	g·ī'gamaᵋē	Tsᴇxᵋwī'dē.	Wä,	lā'ᵋlaēda
put out the	fire of the house of the	chief	Fast-Runner.	Well,	it is said the

g·ī'gamaᵋē	Tsᴇxᵋwī'dē	ʟ̣ā'x̣ulīła	qaᵋs	yā'q!eg·aᵋłē.	Wä,
chief	Fast-Runner	got up in the house	and he	spoke.	Well,

lā'ᵋlaē	ᵋnē'k·a:	"ᵋya,	qāst,	laᵋmō'x	k·!î'lxᵋēdᴇn	k!wē'lasdᴇmāqᴇn	
it is said he	said,	"O	friend!	now this is	extinguished my	feasting-place	this my

lᴇgwē'ła.	Wë'g·ił	la	ē't!aᵋlīłᴇʟ	k!wā'g·aᵋlīłʟōʟ,	qᴇn	dō'qwałē
fire in house.	Go on	now	will again in house	will you sit down in house	so that I	look

qᴇn	wā'łdᴇm	ō'gwaqa,"	ᵋnē'x·ᵋlaēxs	la'ē	x̣wā'sa	lā'xēs
for my	word	also,"	he said, it is said,	as he	was excited	in his

nūłᴇmāłaēnaᵋē.	Wä,	lā'ᵋlaē	ᵋyā'laqasēs	mō'kwē	aᵋyî'lkwa	qa
fool-dance.	Well,	it is said he	sent his	four	attendants	that

lās	ō'gwaqa	dō'xᵋwēdᴇx	axē'łlaxa	lāx	g·ō'kwasēs	nᴇgu'mpē
they go and	also	look for what	they might take	in the	house of his	father-in-law

ᵋmō'ᵋnākula.	Wä,	k·!ē'sᵋᴇmᵋlāwisē	hō'qawᴇlsēda	mō'kwē
Moving-Load.	Well,	not then, it is said,	went out of house the	four

aᵋyî'lkwaxs	la'ē	ḻā'x̣ulīłē	ᵋmō'ᵋnākula	lā'xēs	k!wāē'-
attendants when	then	stood up in house	Moving-Load	at his	sitting-

lasē	lā'xēs	g·ā'xēnēᵋmē	k!wē'ła.	Wä,	lā'ᵋlaē	ᵋnē'k·a:
place in house	for he	had also come	as feaster.	Well,	it is said he	said,

"ᵋya,	nᴇgu'mp,	ᵋyā'laqalas	qa	lāsē	axᵋē'tsᴇᵋwa
"O	son-in-law!	send	that	they go and	be taken

mō'ts!aqa	t!ē't!ᴇgu'na	qas	lᴇgwē'łōs,"	ᵋnē'x·ᵋlaē.	Wä,
four (long)	flat-bowed canoes	for	your fire in house,"	he said, it is said.	Well,

hē'x·ᵋīdaᴇmᵋlā'wisē	Tsᴇxᵋwī'dē	ᵋyā'laqasēs	mō'kwē	aᵋyî'lkwa
immediately, it is said,	Fast-Runner	sent out his	four	attendants

ḻōᵋmē's	haᵋyā'ł̣ᵋa	qa	lēs	tsō'tsōxsᴇndxa	mō'ts!aqē	alō'-
and also his	young men	that	they	break to pieces the	four	new

laq	t!ē't!ᴇgu'na.	Wä,	k·!ē'sᵋlat!a	gā'łaxs	g·ā'xaē
	flat-bowed canoes.	Well,	not, it is said, however,	long when	came

ᵋwē'g·iʟᴇla'yōwēda	tsō'gukwē	t!ē't!ᴇgu'na.	Wä,	lā'ᵋlaē,
carried into house on shoulders the	broken	flat-bowed canoes.	Well,	then it is said they

ᵋmō'x̣ᵘʟālayō	lā'xa	k!wē'lasdᴇma	lᴇgwē'ła	g·ō'kwas	Tsᴇx-
were piled up	at the	feasting-place	fire in house	the house of	Fast-

ᵋwī'dē.	Wä,	laᵋmē'	â'lax·ᵋīd	la	x·īxᵋē'dē	lᴇgwē'łas.
Runner.	Well,	then	truly	now	was burning the	fire in the house with it.

Wä	laᵋmē'	Tsᴇxᵋwī'dē	wā'łāqēlax	Ts!ᴇxᵋī'dē	hē'łtsâsa
Well,	then	Fast-Runner	wished that	Throw-away	might run away from the

ʟ!ē'sala.	Wä,	la	ē'x·ax·ᴇm	ʟ!ō'p!ēda,	qō	k·!ēsʟ
heat.	Well,	then	he thought it good that	he be roasted	if	not will

hē'łtsâʟᴇs.	Wä,	â'ᴇmᵋlāwisē	Ts!ᴇxᵋī'dē	t!ē'x·ᵋālīł
he will run away from it.	Well,	just, it is said,	Throw-away	lay down on his back

lā'xēs	k!waē'lasē.	Wä,	â'ᴇmᵋlāwisē	ᵋnᴇx̣ᵋunā'ᵋyas
at his	sitting-place in house.	Well,	just, it is said,	his blanket

ʟ!ā'ᵋya	la	t!ᴇ'mguᵋnākula.	Wä	hēwā'xaᴇmᵋlā'wisē
(of) black bear	now	became scorched.	Well,	then never, it is said,

q!wē'nałᴇlīłē Ts!ᴇxᶜī'däxs wä'x·ᶜmaē la pᴇnē'ᶜnākulē ʟ!ē'sas
moved in house Throw-away although became covered with blisters the skin of

ōp!ē'g·aᶜyas, lä'xēs â'ēnēᶜmē ᶜnᴇx̣umā'łasēs ʟ!ᴇ'ntsᴇmx·dē
his knee at his just being face being covered with his past bear-skin

ᶜnᴇx̣ᶜunā'ᶜya. Wä, g·î'lᶜᴇmᶜlä'wisē k·!î'lx·âᶜnākulēda lᴇg̣wē'łaxs
blanket. Well, as soon as, it is said, began to die out the fire when

la'ē Ts!ᴇxᶜī'dē k!wä'g·aᶜlił qaᶜs yō'sᶜīdēxēs łō'qulēda tsᴇlxᵘ.
then Throw-away sat down and he ate with spoon out of his dish of crab-apples.

Wä, laᴇ'm ᶜnᴇma'x·ᴇs ʟ̣ōᶜ nē'łaxs k·!ē'saē ts!ᴇ'x·ᶜaʟᴇlē
Well, then this is just as if he showed that not he became sick,

g̣wē'x·ᶜīdaasaq wä'x·ᶜmaē la lᴇg̣u'ła. G·î'lᶜmēsē gwäł yō'sᶜēdēda
what had been done him although he now he was burnt. As soon as finished eating with spoons the

k!wē'łaxa tsᴇ'lxwē la'ē ts!ᴇ'lwaqasōᶜs aᶜyî'lkwäs Tsᴇxᶜwī'dē.
feasters the crab-apples then they were praised by the attendants of Fast-Runner.

Wä, g·î'lᶜmēsē q!wē'łᶜīdēda aᶜyî'lkwaxs la'ē hō'qawᴇlsēda k!wē'łē.
Well, as soon as stopped speaking the attendants then went out of house the feasters.

Wä, gä'łaᴇmᶜlä'wisē k·!ēō's ē't!ēd g̣wē'g·ilasa. Wä, laᴇmᶜlä'-
Well, it was long, it is said, nothing again way of doing thus. Well, then it is

wisē Ts!ᴇxᶜī'dē ʟē'ᶜlālaxēs ᶜnᴇᶜmē'mōtēda ʟō'yalałāwaxa
said Throw-away invited his clan (were) the Hair-turned-up-in-Front at

g̣ä'nuʟē. Wä, laᴇmᶜlä'wisē nē'łasēs yä'ᶜwix·ilaēxsdaᶜē. Wä,
night. Well, then it is said he told that he desired to give a winter-dance. Well,

hē'x·ᶜīdaᴇmᶜlä'wisē ᶜnᴇᶜmē'mōtas ᶜmō'ᶜlas wä'łdᴇmas. Wä,
immediately, it is said, his clan were grateful for his word. Well,

laᴇ'mᶜlaē wäx· sᴇnā'nᴇmaq qaᶜs yak·â'masēx Tsᴇxᶜwī'dē;
then it is said he tried to find out that he might beat Fast-Runner;

lä'g·iłas ᶜnēx· qaᶜs hē g̣wē'x·ᶜīdē. Wä, hē'x·ᶜīdaᴇmᶜlä'wisē
for that reason he said that he thus did. Well, immediately, it is said,

q!ä'ᶜlē Tsᴇxᶜwī'dax wä'łdᴇmas. Wä, laᴇ'mᶜlaxaä'wisē
watched Fast-Runner his word. Well, then it is said, also he

ō'gwaqa	ʟē'ᵋlālaxēs	ᵋnᴇᵋmē'mōtaxa	g̣ā'nuʟē.	Wā,	laᴇmᵋlā'wisē
also	invited his	clans at	night.	Well,	then it is said he

nē'ɬaxēs	ᵋnᴇᵋmē'mōtaxs	lᴇᵋma'ē	ō'gwaqaɬ	yā'wix·îlaɬxa	ts!awu'nxē.
told his	clan	that he	will also	will give winter-dance in the	winter.

Wā,	laᴇmᵋlā'wisē	ᵋnēx·	qaᵋs	ā'ɬāgawaᵋēsēs	hayō'tē	Ts!ᴇxᵋī'dē.
Well,	then it is said he	wished	that he	be always equal to his	rival	Throw-away.

Wā,	laᴇmᵋlā'wisē	g̣wā'ɬē	wâ'ldᴇmasēxs	la'ē	hō'qawᴇlsa.
Well,	then it is said	were finished	their words when	then they	went out of house.

Wā,	k·!ē'sᵋlat!a	g̣ā'ɬaxs	la'ē	x·îsᵋī'dēda	bā'bagumē
Well,	not, it is said, however,	long	when	disappeared the	boy the

xunō'x̣ᵘs	Ts!ᴇxᵋī'dē	ʟ̣ᴇᵋwē's	ts!ā'ts!ᴇdag̣ᴇmē	xunō'x̣ᵘs.
child of	Throw-away	and his	girl	his child.

Wā,	hē'x·ᵋīdaᴇmᵋlaxaā'wisē	x·îsᵋī'dē	bᴇgwā'nᴇmē	xunō'x̣ᵘs
Well,	immediately, it is said, also	disappeared the	man the	child of

Tsᴇxᵋwī'dē	ʟ̣ᴇᵋwē's	maᵋlō'kwē	ts!ē'dāqē	sā'sᴇmaxa	la'ē
Fast-Runner	and his	two	women	children at the	then

ē't!ēd	g̣ā'nuɬᵋēda.	Wā,	lā'ᵋlaē	ē't!ēd	g̣ā'nuɬᵋēdᴇxs
again [next]	night.	Well,	it is said	again	it was night when

la'ē	x·îsᵋī'dēda	ᵋnᴇmō'kwē	bᴇgwā'nᴇm	xunō'x̣ᵘs.	Wā,
then	disappeared	one	man	his child.	Well,

laᴇ'mᵋlaē	ts!ē'ts!āqēda	g·ā'lā	Kwā'kug·uɬa.	Wā,
then it is said	danced winter-dance the	first	Kwakiutl clans.	Well,

laᴇ'mᵋlāwisē	Ts!ᴇxᵋī'dē	hē'laxa	g·ît!ē'noxwē	qa	lās
then it is said	Throw-away	hired the	wood-carver	that	he go and

g·î'ta	qaē'.	Wā,	laᴇ'mᵋlaē	ts!ē'g̣ēsē	g·îtā'ᵋyasa	g·ît!ē'noxwē
carve	for him.	Well,	then it is said a	sea-monster the	carving of the	wood-carver

qa	ʟ̣ō'gwēɬtsa	ts!ā'ts!ᴇdag̣ᴇmē	xunō'x̣ᵘs	Ts!ᴇxᵋī'dāxs
that	it be the supernatural treasure in house of the	girl the	child of	Throw-away when she

tō'x̣ᵋwīdēʟē	qō	g·ā'xʟ	nē'ɬᵋīdᴇʟō.	Wā,	laᴇmᵋlā'-
was to be war-dancer	if she	should come	should show herself.	Well,	then it

wisē	ná'nēda	bá'bagumē	qō	nē'ᴸidᴇʟō.	Wā,
is said a	grisly bear was to be the	boy	if	he should show himself.	Well,

á'ᴇmᵋlá'wisē	Tsᴇxᵋwī'dē	hō'ʟēlax	wá'ldᴇmas.	Wā,	laᴇm-
only, it is said,	Fast-Runner	was listening to	their words.	Well,	then

ᵋla'wisē	lá'ᵋstōd	láx	k·i'mᵋyaᴇnxʟaq.	Wā,	laᴇ'mᵋlá-
it is said it	near	to the	time of being about to meet them.	Well,	then it

wisē	k!wa'ᴸidēda	Kwá'kug·ułē	lá'xa	q!a'mdasē.	Wā,
is said	sat down the	Kwakiutl clans	at the	singing-place.	Well,

laᴇmᵋlá'wisē	Tsᴇxᵋwī'dē	k!wá'gᴇlasᴇq,	qaxs	ᵋná'x̣waᵋmaē	lā'da
then it is said	Fast-Runner	sat with them	for	all they	went the

bē'bᴇgwánᴇmē	lá'xa	q!a'mdasē.	Wā,	laᴇ'mᵋláwisē	gwá'łᴇxs
men	to the	singing-place.	Well,	then it is said	finished when

la'ē	nā'ᵋnakwa.	Wā,	lá'ᵋlaē	gá'nuᴸida,	la'ē	k·ik·i'lnala	ᵋwī'ᵋlēda
then they	went home.	Well,	it is said	night came,	then	tried to bring back (the novice)	all the

q!ē'nᴇmuła	lē'lqwalaʟaᵋya.	Wā,	laᴇ'mᵋláwisē	ᵋná'x·ᵋidxa	gaá'lāxs
many past	tribes.	Well,	then it is said	daylight came in the	early morning when

la'ē	gwá'ła.	Wā,	hē'x·ᵋidaᴇmᵋlá'wisē	la	dā'da	g·á'la	Kwá'g·ułxa
then they	finished.	Well,	immediately, it is said,	went	took the	first	Kwakiutl the

maᵋlō'kwē	x·isá'łas	sá'sᴇmas	Ts!ᴇxᵋī'dē.	Wā,	g·i'lᵋᴇmᵋlá'wisē
two	disappeared ones	children of	Throw-away.	Well,	as soon as, it is said,

g·á'xalēsa	dá'x·dāxa	x·isá'łax·dē	lá'xa	ʟ!ᴇma'ēsaxs	la'ē
came on the beach those	who had taken the	having disappeared ones	on the	beach when	then

qá'k·asᴇᵋwa	tō'x̣ᵋwīdē.	Wā,	lá'ᵋlaēda	ná'nē	ʟᴇ'qasēs
had her head cut off the	war-dancer.	Well,	it is said the	grisly bear	struck with his

gē'ts!ᴇmē	lá'xa	ᵋwá'lasē	t!ᴇgu'na.	Wā,	g·i'lᵋᴇmᵋlá'wisē
claws	at the	large	flat-bowed canoe.	Well,	as soon as, it is said,

gwá'łᴇxs	la'ē	g·ē'x·ᵋēdáyōwēda	t!ᴇgu'nē	láx	Tsᴇxᵋwī'dē.
finished when	then	was given the	flat-bowed canoe	to	Fast-Runner.

Wā,	laᴇ'mᵋláwisē	gwał	q!a'mtasᴇᵋwa	tō'x̣ᵋwīdāxs	la'ē
Well,	then it is said	finished	was sung for the	war-dancer when	then they

hō'xᵋwᴇsdēsa	qaᵋs	lā	hō'gwēʟ	lā'xa	lō'bᴇkwē.	Wā,	lā'ᵋlaē
went up beach	and they	went	went inside	to the	(emptied one) winter-dance house.	Well,	it is said

g̣ā'nułᵋīdᴇxs	la'ē	nanâ'qamasᴇᵋwēda	dā'nᴇmē.	Wā,	laᴇmᵋlā'wisē
night came	when	were brought to their senses by singing, the	caught ones.	Well,	then, it is said, went the

ts!ē'gēsē	ʟ̣ō'gwāᵋyasa	tō'x̣ᵋwīdē.	Wā,	laᴇ'mᵋlaē	g·ā'xustâlīłēda
sea-monster	the supernatural treasure of the	war-dancer.	Well,	then it is said	came up from floor of house the

ts!ē'g̣ēsē	lā'xa	ōgwē'walīłasa	g·ō'kwē.	Wā,	hē'ᴇmᵋlā'wisē
sea-monster	at the	rear of the	house.	Well,	that, it is said,

wā'lōxᵋwēdē.	Wā,	laᴇ'm	g̣wā'łē	Ts!ᴇxᵋī'dē	yā'wix·îla.
was all that was done.	Well,	then	finished	Throw-away	giving winter-dance.

Wā,	lā'ᵋlaē	Tsᴇxᵋwī'dē	ʟ!ā'yōgulsa.
Well,	it is said,	Fast-Runner	changed with him on the ground.

Wā,	laᴇ'mxaᵋē	Tsᴇxᵋwī'dē	ᵋyā'laqasēs	aᵋyî'lkwē	qa
Well,	then also	Fast-Runner	sent his	attendants	that

lās	ʟē'ᵋlāla	ᵋwuᵋnā'łaxa	la,	g̣ā'ła	gā'nuʟa	lā'xēs
they go and	invite	secretly in the	now	long	night	to his

ᵋnᴇᵋmē'mōtē.	Wā,	g·î'lᵋᴇmᵋlā'wise	g·āx	ᵋwī'ᵋlaēʟᴇxs
clans.	Well,	as soon as, it is said, they	came	all into the house

la'ē	ʟ̣ᴇnē'x·ᵋītsᴇᵋwē	t!êx·î'lāsa	ts!ā'g̣ats!ē	g·ōx̣ᵘs
then	was barred the	door of the	winter-ceremonial receptacle	the house of

Tsᴇxᵋwī'dē.	Wā,	laᴇ'mᵋlāwisē	nē'łē	ᴇ'lkwās	Tsᴇxᵋwī'dāxēs
Fast-Runner.	Well,	then it is said	told	the attendant of	Fast-Runner his

ᵋnᴇᵋmē'mōtaxs	lᴇᵋma'ē	lāł	k!wā'łałxa	lā'ʟa	dzā'qwałtsa	lā'ʟa
clan that	they	go	sit in the	future	evening of the	future

ē't!ēdᴇł	ᵋnā'x·ᵋīdᴇʟ.	Wā,	hē'ᵋmēsēxs	lᴇᵋma'ē	ᵋnē'k·ēs	g·ī'g̣amaᵋē,
again	morning.	Well,	that is when	he	said his	chief

yîx	Tsᴇxᵋwī'dē	qaᵋs	wē'g·iʟ	ē't!ēdᴇł	mō'masᵋīdᴇłxēs	ᵋnᴇmō'kwē
that	Fast-Runner	that he	will go on	will again	will do harm to his	friend

Ts!ᴇxᵋī'dē	qō	lāł	nē'łᵋīdᴇʟēs	x·ē'x·îsāłā.	"Wā,	laᴇ'mᵋlā'wisᴇns
Throw-away	if	will go	will show his	disappeared ones.	"Well,	then we are told to

g̣wä'łałał	qᴇns	g·ō'x̣ᵋwēdēʟᴇnsaqᴇk·	qaᵋg·ō	häᵋyalä'läsōʟō,"
be ready	that we	shall help him	if he	will be faced by his rival,"

ᵋnē'x·ᵋlaē.	ᵋnä'x̣waᴇmᵋlä'wisē	ᵋnᴇᵋmē'motas	ᵋnē'k·ᴇxs	lᴇᵋma'ē	ᵋwī'ᵋla
be said, it is said.	All, it is said,	his clan	said when	they	all

g̣wä'łała.	Wä,	laᴇ'mᵋläwisē	g̣wä'łē	wä'łdᴇmasēxs	la'ē	hō'qawᴇlsa·
are ready.	Well,	then it is said	finished	their words when	they	went out of the house.

Wä,	laᴇ'mᵋläwisē	ᵋnä'x̣wa	g̣a'x·staēłaxs	g·ä'laē	hō'qawᴇlsa.
Well,	then it is said	all	went to bed when	first they (as soon as)	went out of house.

Wä,	laᴇ'mᵋläwisē	ä'lᵋᴇm	ts!ᴇx·ᵋī'dxa	la	g̣ā'ła	ᵋnä'laxa
Well,	then it is said they	soon	awoke at	now	long (late in)	day on the

la łᴇ'nsa.	Wä,	hē'x·ᵋidaᴇmᵋlä'wisē	ᵋnä'x̣wa	la	kwä'sēda
now next day.	Well,	immediately, it is said, they	all	went	washed themselves the

g̣wē'g̣udza	ʟ̣ᴇᵋwē's	ts!ē'däqē	ʟ̣ō'ᵋma	g·i'ng·inänᴇmē.
winter-dancers (sparrows)	and their	women	and the	children.

Wä,	g·i'lᵋᴇmᵋlä'wisē	gwä'łᴇxs	la'ē	ʟē'ᵋlalē	Tsᴇxᵋwī'däxa
Well,	as soon as, it is said,	finished when	then	invited	Fast-Runner the

g̣wē'g̣udza	ʟ̣ᴇ'ᵋwa	ts!ē'däqē	ʟ̣ō'ᵋma	gi'ng·inänᴇmē	qa
winter-dancers	and the	women	and the	children	that

läs	hē'yasᴇla	lä'xa	ts!ā'g̣ats!äs	Tsᴇxᵋwī'dē.	Wä,
they go and	breakfast	at the	winter-ceremonial house of	Fast-Runner.	Well,

g·i'lᵋᴇmᵋlä'wisē	g̣wäł	haᵋmä'pᴇxs	laē'da	aᵋyi'lkwē	ō'päłaxa
as soon as, it is said, they	finished	eating when	then the	attendants	whispered to

ᵋnä'x̣wa	g̣wē'gudza	qa	läs	lä'xa	k!wä'łaasē	lä'xa
all the	winter-dancers	that	they go	to the	sitting-place	to the

q!a'mdasē	lä'xa	ä'ʟ!ē.	Wä,	hē'x·ᵋidaᴇmᵋlä'wisa	bē'-
singing-place	in the	inland.	Well,	immediately, it is said, the	

bᴇgwänᴇmē	ᵋwī'ᵋla	q!wä'g·aᵋlił	qaᵋs	lē	ä'ʟēᵋsta.	Wä,
men	all	arose	and they	went	around inland.	Well,

g·i'lᵋᴇmᵋlä'wisē	ᵋwī'ᵋla	la	k!usᴇ'lsᴇxs	la'ēda	nēᵋnä'-
as soon as, it is said, they	all	went	to sit down on the ground, when	then the	song-

g̣adē	dᴇ'nxᵋītsa	maᵋłtsᴇ'mē	q!a'mq!ᴇmdᴇmasa	tō'x̣ᵋwīdē.
masters	began to sing the	two	songs of the	war-dancers.

Wä,	hë'ᵋmēsa	maᵋłtsᴇ'mē	q!a'mq!ᴇmdᴇmasa	nā'nē.	Wä,
Well,	also the	two	songs of the	grisly bears.	Well,

g·î'lᵋᴇmᵋlā'wisē	g̣wā'ła	nēᵋnâ'g̣adē	dᴇ'nxᴇlaxs	la'ē
as soon as, it is said,	finished the	soug-masters	singing when	then

Tsᴇxᵋwī'dē	yā'q!eg·āᵋła.	Lā'ᵋlaē	ᵋnē'k·a:	"ᵋya,	ᵋnē'ᵋnᴇmōkwā',
Fast-Runner	began to speak.	Then it is said he	said,	"O	friends!

laᴇ'ms	ᵋwī'ᵋlał	q!wā'lax·ałxwa	g̣ā'nuʟēx,	qās	ë'k·!ēqᴇlēʟōs
now you	will all	will dress this	night,	that you	may be happy

qaᴇ'n	wā'łdᴇmʟēx,"	ᵋnē'x·ᵋlaē.	Wä,	lā'ᵋlaē	ᵋwī'ᵋlaᵋma
on account of my	word,"	he said, it is said.	Well,	it is said	all the

g̣wē'g̣udza	nā'ᵋnaxᵋmēq.	Wä,	lā'ᵋlaē	ᵋnē'k·a:	"Hë'ʟᴇnuᵋx̣ᵘ
winter-dancers	answered him.	Well,	it is said they	said,	"This we shall

g̣wē'laʟē"	ᵋnē'x·ᵋlaē.	Wä,	lā'ᵋlaē	hë'x·ᵋīdaᵋma	mō'kwē	aᵋyî'lkᵘ
shall do thus,"	they said, it is said.	Well,	it is said,	immediately the	four	attendants

qā'sᵋīd	qaᵋs	lā	xâ'set!alaxa	lē'lādᴇnōkwē.	Wä,	g·î'lᵋᴇmᵋlā'wisē
walked	and they	went	asked to wash their bodies	those who had dances.	Well,	as soon as, it is said,

lā'da	mō'kwē	aᵋyî'lkwaxs	la'ē	hō'xᵋwułt!ēda	q!a'mt!ᴇsdē.
went the	four	attendants	then	went out of the woods the	song-experts.

Wä,	hë'x·ᵋidaᴇmᵋlā'wisē	xwā'nałᵋēdēda	ᵋnā'x̣wa	g̣wē'g̣udza
Well,	immediately, it is said,	got ready	all the	winter-dancers

ʟ̣ᴇᵋwē's	ts!ē'dāqē	ʟ̣ᴇᵋwa'	ᵋnā'x̣wa	g·î'ng·înānᴇmē.	Wä,
and their	women	and	all the	children.	Well,

laᴇ'mᵋlaē	k·îk·î'lnala.	Wä,	ā'łᵋᴇmᵋlā'wisē	g̣wā'łᴇxs	la'ē
then it is said they	they tried to bring them back.	Well,	just, it is said, they	finished	when

ᵋnā'ᵋnākulaxa	g̣aā'la.	Wä,	hë'x·ᵋīdaᴇmᵋlā'wisē	lā'da	mō'kwē
daylight came in the	early morning.	Well,	immediately, it is said,	went the	four

aᵋyî'lkᵘ	axᵋē'dxa	mō'ts!aqē	awâ'	t!ē't!ᴇguna	qa	ʟ̣ᴇ'nkwēsēsa
attendants	took the	four (long)	great	flat-bowed canoes	and	tied them together with the

mō′ts!aqē	g·î′lsg·ilt!a	dzō′x̣uma.	Wā,	lā′ᵋlaē	pak·ᴇᴇ′ntsōᵋsa
four (long)	long	poles.	Well,	it is said they	were covered over with

saō′kwē.	Wā,	g·î′lᵋᴇmᵋlā′wisē	gwā′łᴇxs	la′ē	hō′xᵋwaʟᴇxsēda
boards.	Well,	as soon as, it is said, they	were finished when	then	went into canoes

ᵋnā′x̣wa	gwē′gudza	lāq.	Wā,	laᴇ′mᵋlaē	k·!ēs	lā′da	nēnā′nē
all the	winter-dancers	on them.	Well,	then it is said	not	went the	grisly bears

ʟ̣ᴇᵋwa′	nō′ᴇnłᴇmāła	ʟ̣ōᵋ	ᵋnā′x̣wēda	lē′laēnēnokwē	lā′xa	da.
and the	fool-dancers	and	all those	having dances	to the	taking.

Laᴇ′mᵋlaē	â′ᴇm	k!udzī′ł	lā′xa	lō′bᴇkwē.	Wā,	k·!ē′sᵋlat!a
Then it is said they	just	sat in house	in the	winter-dance house (emptied one).	Well,	not, however, it is said,

gā′łēda	dāxs	g·ā′xaē	ᴇyō′x̣ᵋwēd	lāx	gwa′k·!ōdiłbaᵋē
long the	taking when	came	back	at the	opposite northern end of point

awī′łbēs	Qā′logwisē.	Wā,	g·ā′xᵋlaē	ha′ng·aᵋlēs	lāx
point of	Crooked-Beach.	Well,	came, it is said,	being in front of beach	at the

ʟ!ᴇma′ēsasa	lō′bᴇkwē.	Wā,	laᴇ′mᵋlāwisē	ᵋnᴇ′mē	nā′nē
beach of the	winter-dance house (emptied one).	Well,	then it is said	one	grisly bear

haxᵘts!â′gwēwē	lāx	â′gwīwaᵋyasa	ᵋnᴇ′mts!aqē	t!ᴇgu′na.
lay down inside of bow	in the	bow of	one (long)	flat-bowed canoe.

Wā,	lā′ᵋlaxaēda	ᵋnᴇ′mē	nā′nē	hē′xat!	gwā′ła	lāx	â′gwīwaᵋyasa
Well,	also, it is said, the	one (other)	grisly bear	that also	thus	in the	bow of the

ᵋnᴇ′mts!aqē.	Wā,	laᴇ′mᵋlaē	k·!ēs	yā′wīx·ā′lag·îłᴇxsa.	Wā,
one (long) (= other canoe).	Well,	then it is said they	not	moved about in canoe.	Well,

laᴇ′mᵋlāwisē	q!a′mt!ētsᴇᵋwēda	maᵋlō′kwē	tētō′x̣ᵋwīda.	Wā,
then it is said	were sung for the	two	war-dancers.	Well,

g·î′lᵋᴇmᵋlā′wisē	gwāł	q!a′mtasōxs	la′ē	ᵋyā′lagᴇma
as soon as, it is said, they	finished	were sung for when	then	was sent a

ᵋwālatsā′yōkwē	q!ā′k·ō	bᴇgwā′nᴇma	qaᵋs	lē	q!ō′dᴇg·iwālētsa
stout	slave	man	that he	go	keep bow with a

dzō′x̣umē	lā′xa	ᵋwā′lēgaᵋyasa	t!ēt!ᴇgu′nē.	Wā,	g·î′lᵋᴇmᵋlā′wisē
pole	in the	large one among the	flat-bowed canoes.	Well,	as soon as, it is said, he

Ḷā'x̣ᵋwałᴇxs	la'ēda	bā'bak!wē	Ḷē'gadᴇs	Qᴇ'nx̣ᵋwīdā'yō
stood up in the canoe,	then a	warrior	named	Frowned-upon

haxsᴇ'młᴇxsaq.	Wä,	lā'ᵋlaē	ᵋnᴇmō'kwasē	ᵋnā'x̣ulalēsē,	axᵋē'dxēs
fell upon him in canoe.	Well,	it is said	his friend	Warrior-all-round-the-World	took his

k·!ē'ʟᴇnxē	qaᵋs	k·!ē'łtsēᵋstalēs	māk·înxᴇ'ndalaxōx	awᴇ'nxaᵋyaxsᴇns
sharp-edged (knife)	and he	cut around with it	close to this	edge of our

sᴇᵋya'x.	Wä,	g·î'lᵋᴇmᵋlā'wisē	lᴇ'lgᴇwē	k·!ē'ʟaᵋyasēxs
hair.	Well,	as soon as, it is said,	met	where it was cut when

la'ē	nē'xōdᴇx	ʟ!ē'tsᴇmaᵋyas	x·ō'msdäsa	q!ā'k·ōwē.	Wä,
then he	pulled off the	scalp of the	head of the	slave.	Well,

lā'ᵋlaē	ʟaxᵋwułtō'dxa	q!ā'k·ō.	Wä,	g·î'lᵋᴇmᵋlā'wisē	laᵋsta'xs
it is said	they pushed out of canoe the	slave.	Well,	as soon as, it is said, he	he went into the water, when

gā'xaēda	hā'ᴇmats!	Ḷᴇᵋwa'	nēᵋnā'nē	Ḷᴇᵋwa'	nō'ᴇnłᴇmāła	hō'qawᴇls
came the	cannibals	and the	grisly bears	and the	fool-dancers	went out

lā'xa	lō'bᴇkwē	qaᵋs	lä	qā'qāyaxa	q!ā'k·âxs	la'ē	dzᴇx̣waē'sᴇla
from the	winter-dance house	and they	went	pursued the	slave when	then he	ran along

lāx	ʟ!ᴇmā'ēsas	Qā'log̣wīsē.	Wä,	hē'ᵋmēs	la	qāqāya'atsa
at the	beach of	Crooked-Beach.	Well,	and that is	then	place of pursuing of the

nēᵋnā'nāq	Ḷᴇᵋwa'	nō'ᴇnłᴇmāła	qaᵋs	sā'k·ap!ēq.	Wä,	lā'ᵋlaē
grisly bears him	and the	fool-dancers	that they	tried to spear him.	Well,	it is said,

nā'pap!ēda	waō'kwaq.	Wä,	lā'ᵋlaēda	nēᵋnā'nē	ʟā'qap!ᴇsēs
tried to throw stones	several at him.	Well,	it is said the	grisly bears	tried to strike with their

xēxᴇlyā'yōwē	lāq.	Wä,	wē'g·aaᵋlat!a	lāx	ᵋnā'lanēg̣wēsas
claws	at him.	Well,	not he reached, however,	to the	beach on south side of

Qā'log̣wīsaxs	la'ē	ya'xᵋwalēsa.	Wä,	laᴇ'm	łᴇᵋl	la'xēq.	Wä,
Crooked-Beach	when he	fell down dead on beach.	Well,	then	dead he is	there.	Well,

hē'x·ᵋīdaᴇmᵋlā'wisa	nō'ᴇnłᴇmāła	sᴇsōx̣ᵘsᴇ'ndxa	q!ā'k·ōx̣ᵘdē.
immediately, it is said, the	fool-dancers	cut up in pieces the	former slave.

Wä,	g·î'lᵋᴇmᵋlā'wisē	gwāł	sā'kwasōxs	la'ēda	ha'ᴇmats!a
Well,	as soon as, it is said, he	finished	was cut up when	then the	cannibals

hō′qunts!ēs	lā′xa	ʟ!ᴇmā′ēsē	qaᵋs	lā	haᵋmx·ᵋī′dᴇq.	Wā,
went down to beach	to the	beach	that they	go	eat him.	Well,

lā′ᵋlaē	ō′gwaqaᵋma	nēᵋnā′nē	Ḷᴇᵋwa′	nō′ᴇnłᴇmāła	haᵋmēk·!ā′la
it is said,	also the	grisly bears	and the	fool-dancers	asked to eat

lāq.	Wā,	wēlaxᵘdzē′ᵋlaē	g̣ē′x·ᵋīdᴇxs	la′ē	ᵋwī′ᵋlaq	qaxs
of it.	Well	not it took, it is said,	long when	they	(ate) him all up	for

maᵋłtsō′gug·îyâᵋēda	bᴇgwā′nᴇmē	haᵋmā′pxa	q!ā′k·ōx̣ᵘdē.	Wā,
120 were the	men	eating the	former slave.	Well,

lā′ᵋlaēda	nēᵋnā′nē,	yî′xa	maᵋłē′	dā′nᴇma,	hĕ′x·ᵋīdaᴇm
it is said the	grisly bears,	that is the	two	novices (taken ones),	immediately

łē′nᴇmax	ꜱᴇᵋya′x·dās	qaᵋs	łē′nᴇmap!ēq.	Wā,	laᴇ′m
took away	his past hair	and they	took it from each other.	Well,	then

haᵋmg·i′ᵋlāyō	lāq.	Wā,	hĕ′ᵋmēsēxs	lᴇᵋma′ē	k·!ē′lak·asōᵋs
was given food	to them.	Well,	and that is when	he	was killed by

Tsᴇxᵋwī′dē	qaē′s	hayō′tē	Ts!ᴇxᵋī′dē.	Wā,	laᵋmē′	yā′k·âwēda
Fast-Runner	on account of his	rival	Throw-away.	Well,	then	was beaten the

g·ī′gamaᵋē	Ts!ᴇxᵋī′dē	lā′xēs	ᵋnᴇmō′kwē	Tsᴇxᵋwī′dē.
chief	Throw-away	by his	friend	Fast-Runner.

Wā,	g·î′lᵋᴇmᵋlā′wisē	gwāł	a′młēda	maᵋłē′	nēᵋnā′nēsa
Well,	as soon as, it is said,	finished	playing the	two	grisly bears with the

sā′bᴇkwē	ꜱᴇᵋyā′sa	q!ā′k·ōx̣ᵘdāxs	la′ē	Tsᴇxᵋwī′dē	dā′x·ᵋīdxa
skinned	hair of the	former slave,	then	Fast-Runner	took the

sā′bᴇkwē	ꜱᴇᵋyā′	qaᵋs	lā	ts!âs	lāx	Ts!ᴇxᵋī′dē.
skinned	hair	and he	went	gave it	to	Throw-away.

Wā,	lā′ᵋlaē	ᵋnē′k·a :	" Wā,	qā′stā,	laᵋmō′x
Well,	it is said he	said,	" Well,	friend,	now this

qō′sʟ,"	ᵋnē′x·ᵋlaē.	Wā,	g·î′lᵋmēsē	gwā′łᴇxs	la′ē	hō′xᵋwułtâ
will be yours,"	he said, it is said.	Well,	as soon as he	finished	then	went out of canoe

ᵋwī′ᵋlēda	k·î′mᵋyax·dāxa	x·î′sā′łax·dē.	Wā,	g·î′lᵋᴇmᵋlā′wisē
all those	who had surrounded the	former disappeared ones.	Well,	as soon as, it is said,

dzā'qwaxs	la'ē	aᵋyî'lkwās	Tsᴇxᵋwī'dē	qā'sᵋīda.	Wä,	k·!ē'sᵋlat!a
evening came,	then the	attendants of	Fast-Runner	walked (to call).	Well,	not, however, it is said,

g·ā'łaxs	g·ā'xaē	ᵋwī'ᵋlaēʟēda	g·ā'lā	Kwā'kug·uła.	Wä,
long when	came	all into house the	first	Kwakiutl clans.	Well,

hë'x·ᵋīdaᴇmᵋlā'wisē	yâ'łasᴇᵋwēda	maᵋłē'	nēᵋnā'na.	Wä,
immediately, it is said,	were tamed the	two	grisly bears.	Well,

g·î'lᵋᴇmᵋlā'wisē	gwā'łᴇxs,	la'aᴇl	yā'laqwēda	maᵋlō'kwē
as soon as, it is said, they	finished with it,	then it is said	sang their sacred songs the	two

tētō'x̣ᵋwīda.	Wä,	g·î'lᵋᴇmᵋlā'wisē	q!wē'łᵋēdᴇxs	la'ē	dᴇ'nxᵋēdēda
war-dancers.	Well,	as soon as, it is said, they	stopped speaking,	then	began to sing the

nēᵋnâ'gadē.	Wä,	g·ā'xēda	maᵋlō'kwē	tētō'x̣ᵋwīd	ᵋyᴇxᵋwułt!ā'-
song-masters.	Well,	came the	two	war-dancers	dancing as they

līłᴇl	qaᵋs	lāᵋstalī'łᴇlē	lā'xa	lᴇqawā'līłasa	g·ō'kwē.
came out of house,	and they	went around in house	at the	fire in middle of the	house.

Wä,	laᴇ'mᵋlā'wisē	gwāł	dᴇ'nxᴇlasa	ᵋnᴇ'msgᴇmē	q!a'm-
Well,	then it is said they	finished	singing with	one (round)	song.

dᴇma.	Wä,	hë'x·ᵋīdaᴇmᵋlā'wisa	yā'yaq!antemīłē	la	lāx
	Well,	immediately, it is said, the	speaker of the house	went	to the

q!waē'lasasa	maᵋlō'kwe	tētō'x̣ᵋwīda.	Wä,	laᴇ'mᵋlāwisē
standing-place of the	two	war-dancers.	Well,	then it is said

wuʟā'sᴇᵋwēda	ᵋnᴇmō'kwē	tō'x̣ᵋwīd	lā'xēs	axē'xsdᴇsᴇᵋwa.	Wä,
was asked	one	war-dancer	for her	desired (thing).	Well,

hë'x·ᵋīdaᴇmᵋlāwisē	tō'x̣ᵋwīdē	ᵋnē'k·a:	"Wā'łaqēlēg·anuᵋx̣ᵘ
immediately, it is said, the	war-dancer	said,	"We desire

qᴇnuᵋx̣ᵘ	lᴇqwī'lasᴇᵋwē	lā'xwa	lᴇgwē'łēx,"	ᵋnē'x·ᵋlae.	Wä,
that we	be made fire [put into fire]	into that	house-fire,"	she said, it is said.	Well,

lā'ᵋlaēda	yā'yaq!antemīłē	e'tâlas	lā'xēs	ᵋnᴇᵋmē'mōtē	yîs
it is said the	speaker of the house	repeated it	to his	clan	the

wā'łdᴇmasa	tētō'x̣ᵋwīdē.	Wä,	hë'x·ᵋīdaᴇmᵋlāwisa	mō'kwē	aᵋyî'lx̣ᵘs
word of the	war-dancers.	Well,	immediately, it is said, the	four	attendants of

Tsᴇxᵋwī'dē	yā'q!eg·aᵋła.	Wä,	laᴇ'mᵋlāwisē	ᵋne'k·a:	"ᵋyā,	pēpᴇxalā',
Fast-Runner	spoke.	Well,	then it is said	they said,	"O	shamans (dancers),

wē'g·adzâx·îns	ᵋnᴇ'mp!ᴇna	nā'nagēg·ēxg·axg·a	wā'łdᴇmg·asg·îns
let us	for one time	obey this	desire of our

ᵋnēᵋnᴇmō'kuk·.	Wä,	wē'g·a	axᵋē'dᴇx	maᵋłᴇxsā'	ts!ā'ts!axᵘ-
friends here.	Well,	go on	take	two flat	short roof-

sᴇma	qᴇns	wē'g·ī	yîʟᴇdzōdā'lasᴇk·	lāq,"	ᵋnē'x·ᵋlaē.	Wä,
boards	that we	go on	tie them on	to them,"	they said, it is said.	Well,

laᴇ'mᵋlāwisē	ʟē'ᵋlālasᴇᵋwa	maᵋlō'kwē	bā'bᴇbak!wa,	yîx
then it is said	were invited	two	warriors,	that is

Qᴇnx̣ᵋwīdā'yōwē	ʟ̣ᴇᵋwē's	ᵋnᴇmō'kwē	ᵋnā'x̣ulalēsē	qa
Frowned-upon	and his	friend	Warrior-all-round-the-World,	that

g·ā'xēs	yîʟᴇdzō'ts	lā'xa	ts!ā'ts!aōx̣ᵘsᴇmē.	Wä,	hē'x·ᵋī-
they come and	tie them on	to the	short roof-boards.	Well,	immedi-

daᴇmᵋlā'wisē	axᵋē'tsᴇᵋwa	maᵋłᴇxsa'	ts!ā'ts!ᴇts!aōx̣ᵘsᴇma
ately, it is said,	were taken	two flat	short roof-boards

qaᵋs	g·ā'xē	pā'xalēlᴇm	lā'xa	ōgwēwalī'łasa	g·ō'kwē.
and they	came	put them down	in the	rear of the	house.

Wä,	laᴇ'mᵋlāwisē	dā'x·ᵋītsᴇᵋwa	maᵋlō'kwē	tētō'x̣ᵋwīd
Well,	then it is said	were taken the	two	war-dancers

qaᵋs	nāᴇnʟᴇdzōdā'yōwē	lā'xa	ᵋnā'łᵋnᴇmxsa	ts!ā'ts!aōx̣ᵘsᴇma.
and they	were laid on their backs	on the	each flat	short roof-board.

Wä,	laᴇ'mᵋlāwisa	g·î'lt!a	dᴇnᴇ'm	axᵋētsᴇᵋwa	qa
Well,	then it is said a	long	cedar-bark rope	was taken	for

yāʟâ'ᵋłayōsa	ts!ē'daqē	tō'x̣wᵋīd	ʟ̣ᴇ'ᵋwa	ts!ā'ts!aōx̣ᵘsᴇmē.
instrument of tying of the	women	war-dancers	and the	short roof-boards.

Wä,	laᴇ'mᵋlaxaā'wisē	hē'ᴇm	gwē'x·ᵋītsᴇᵋwa	ᵋnᴇmō'kwē.
Well,	then, it is said, also,	that	thus was done to the	other one.

Wä,	laᴇ'mᵋlāwisē	gwā'łᴇxs	la'ē	axᵋētsᴇᵋwa	ʟ̣ᴇsʟ̣ᴇkwē'
Well,	then it is said they	finished when	then	were taken	thick

tᴇ'mg·îkᵘ	lᴇqwa'	qaᵋs	qᴇlxasustâ'lasᴇᵋwē	lāx	awī'ᵋs-
blocks	fire-wood	and they	were piled up	at the	around

tāsa	lᴇgwī'łē.	Wā,	â'ᵋmēsē	la	nᴇxts!ᴇᵋwē'da
the	fire.	Well,	and only	then	was in centre the

lᴇgwī'łē	lāq.	Wā,	laᴇ'mᵋlāwisē	ha'lsᴇlaᴇmᵋla	hēłts!ā'pᴇlēda
fire	in it.	Well,	then, it is said,	hardly	could look over a

g·ī'lt!ᴇxsdē	bᴇgwā'nᴇm	lāx	x·îxts!â'laq.	Wā,	laᴇ'm	gwā'łała
tall	man	in the	putting head out into it.	Well,	then	it is ready

qaē'da	maᵋlō'kwē	tētō'x̣ᵋwīd	qō	lāł	lāts!ō'ᵋyōʟō	lāq.
on account of the	two	war-dancers	if	will then	will be put in middle	into it.

Wā,	hē'ᵋmaaxs	la'ē	ᵋnē'k·a	tētō'x̣ᵋwīdē	qaᵋs	lāx·ʟā'nōwē
Well,	that when	then they	said the	war-dancers	that they	should be put on top

lā'xa	lᴇgwī'łē.	Wā,	la	axᵋē'tsᴇᵋwa	maᵋłᴇxsa'	ts!ā'ts!aōx̣ᵘsᴇmē
on the	fire.	Well,	then	were taken	two flat	short roof-boards

la	ᵋnā'ᵋnᴇmax·îyaakᵘ	ʟ̣ᴇᵋwa'	la	nᴇʟ̣ᴇdzâ'yaatsa	tētō'x̣ᵋwīdē.	Wā,
	made just like	also the	now	place of lying on back of the	war-dancers.	Well,

lā'ᵋlaē	axᵋē'tsᴇᵋwa	q!wā'xē.	Wā,	la'ᵋlaxaē	ᵋnā'ᵋnᴇmax·îyaakᵘ
it is said	were taken	hemlock-branches.	Well,	then also, it is said, they	were made just like

ʟ̣oᵋ	qēqᴇx·îmaᵋyasa	â'lak·!āla	tō'x̣ᵋwīda.	Wā,	laᴇ'm-
also the	hemlock head-rings of the	true	war-dancer.	Well,	then

ᵋlāwisē	qᴇx·îmdā'yō	lā'xa	q!ā'q!ᴇk·ō	maᵋlō'kᵘ	ts!ē'dāqa.
it is said they	were tied around	to the	slaves	two	women.

Wā,	laᴇ'mᵋlāwisē	la	nē'nᴇʟ̣ᴇdzōdāyō	lā'xa	ts!ā'ts!ᴇts!aōx̣ᵘsᴇmē.
Well,	then it is said they	now	were laid down on their backs	on the	short roof-boards.

Wā,	laᴇ'mᵋlāwisē	yîłᵋēdā'yōwēda	g·ī'lt!ē	dᴇnᴇ'm	lāq	lāx
Well,	then it is said	were tied the	long	cedar-bark ropes	to them	in the

gwā'łaasasa	maᵋlō'kwē	tētō'x̣ᵋwīda.	Wā,	laᴇ'mᵋlāwisēda
same manner as the	two	war-dancers.	Well,	then it is said the

maᵋlō'kwē	bā'bᴇbak!wa	ᵋnē'x·xa	maᵋlō'kwē	ts!ē'dāq	q!ā'q!ᴇk·â:
two	warriors	said to the	two	women	slaves,

“ᵋya,	sâ'sᴇm,	gu'nō	gwâʟ!ᴇxʟ̣â'lalaxō	qa'sō	lâł	lax·ʟâ'nōł
“O	children!	do not	scream	if you	will	you will be put on top

lâxg·a'da	lᴇgwī'łēk·.	Wā,	hē'ᵋmaaxs	k·!ē'sēʟaqōs
on this	fire.	Well,	that when	you not

gwâʟ!ᴇxʟ̣â'laʟōʟ,	wā,	lâ'ʟᴇs	mō'p!ᴇnx̣waᵋsᵋᴇmł	k·!ēs	g·âx
you will scream,	well,	then you will,	four (times) day	not	come

q!ula'x·ᵋīdᴇʟōʟ.	Wā,	g·ī'lᵋᴇmłᵋwīts	gwâʟ!ᴇxʟ̣â'laʟōʟ,	wā,
you will come to life.	Well,	as soon as you will	you will scream,	well,

laᵋmē'sᴇnuᵋxᵘ	kwē'xap!ᴇʟōʟ	qaᵋs	łēłᴇ'ᵋlaōs.	Wā,	laᴇ'ms	xᴇk·!â'ł
then we	shall strike the nape of your necks	so that	you die.	Well,	then you	will stay away

łēłᴇ'ᵋlł	lâ'xaq,"	ᵋnē'x·ᵋlaē.	Wā,	laᴇ'mᵋlawisē	ᵋnā'x̣wa	yâ'q!eg·aᵋłēda
will be dead	by this,"	they said, it is said.	Well,	then it is said	all	spoke

ᵋwē'ᵋwōsēlaga	ts!ē'dâq	q!â'q!ᴇk·â.	Wā,	lâ'ᵋlaē	ᵋnē'k·a:
poor women	women	slaves.	Well,	it is said they	said,

“Wē'g·a	â'ᴇm	ha'ᵋlilālax	laᴇ'mx·	łâk!wē'masg·anuᵋx̣ᵘ	nēᵋnâ'qēk·
“Go on	only	do it quickly	this	we are strong in our	hearts

qᴇnu'ᵋx̣ᵘ	k·!ē'sē	gwâ'ʟ!ᴇxʟ̣â'la	qᴇnu'ᵋx̣ᵘ	k·!ē'sēł	gā'łał	qᴇnu'ᵋx̣ᵘ
for we	not	scream	so that we	shall not	shall be long	that we

g·a'xēł	ē't!ēdᴇł	q!ula'x·ᵋīda,"	ᵋnē'x·daᵋxᵘᵋlaē.	Wā,	laᴇ'mᵋlaē
shall come	shall again	come to life,"	they said, it is said.	Well,	then it is said they

gwâ'līła.	Wā,	lâ'ᵋlaēda	nō'ᴇnłamała	ʟē'ᵋlalasōᵋs	Tsᴇxᵋwī'dē
were ready.	Well,	it is said the	fool-dancers	were invited by	Fast-Runner

qaᵋs	lā	ʟâ'g·iliłaxa	la	yâ'gudzâyaatsa	tētō'x̣ᵋwīdē,	qaᵋs
that they	go and	carry up the	now	place of lying tied on board of the	war-dancers	that they

lā	ʟ̣ax̣ᵘʟᴇ'ndᴇs	lâ'xa	lᴇgwī'łē.	Wā,	g·ī'lᵋᴇmᵋlâ'wisē
go	put it on top	on the	fire.	Well,	as soon as, it is said,

g·â'xēda	nō'ᴇnłᴇmâłâxs	la'ē	ᵋnā'x̣wa	q!wâ'g·aᵋlīła
came the	fool-dancers when	then	all	stood up in house the

gwē'gudza.	Wā,	laᴇ'mᵋlaē	xō'lex̣ulīła.	Wā,
winter-dancers.	Well,	then it is said they	were all confused (running about).	Well,

laᴇ'mᵋlāwisa	nō'ᴇnłᴇmāła	ʟā'g·aᵋlīłaxa	tētō'x̣ᵋwīdē	qaᵋs
it is said the	fool-dancers	took up in house the	war-dancers	and they

x·ī'lp!ēdē	lā'xa	ōgwēwalī'łaxs	la'ē	lāᵋstalī'łᴇlas
turned around	in the	rear of house when	then they	went around in house with them

lā'xa	g·ō'kwē.	Wä,	lā'ᵋlaē	x·ī'lp!ēd	lā'xa	ōᵋstâlī'łasa
in the	house.	Well,	it is said they	turned around	at the	door of the

g·ō'kwē.	Wä,	lā'ᵋlaē	ē't!ēd	lāg·îyōlī'łᴇlaxs	la'ē
house.	Well,	it is said they	again	went to rear when	then they

hēyak·îlī'łᴇla	lā'xa	hēłk·!ōtē'walīłē.	Wä,	lā'ᵋlaē	axā'līłaxa
went back to inner room	at the	right-hand side.	Well,	it is said they	put down the

â'lak·!āla	tētō'x̣ᵋwīd	qaᵋs	q!ulā'łᵋēdēq.	Wä,	lā'ᵋlaē	ʟā'g·aᵋlīłaxa
true	war-dancers	and they	hid them.	Well,	it is said they	took up the

maᵋlō'kwē	q!ā'q!ᴇk·ō	qaᵋs	lē	lâłt!ā'līł	lā'xa	g̣ᴇmxōtē'walīłē.
two	slaves	and they	went	went out	at the	left-hand side.

Wä,	lā'ᵋlaē	lēᵋstalī'łᴇlas	qaᵋs	lē	lā'xa	ōᵋstâ'lī-
Well,	it is said they	went around with them	and they	went	to the	door

łaxs	la'ē	ᵋwᴇlg·aᵋlī'lᴇma	ᵋnᴇmō'kwē	q!ā'k·ō.	Wä,
when	then	was stopped	one	slave.	Well,

lā'ᵋlaēda	ᵋnᴇmō'kwē	hēᵋstalī'łᴇlāyâ	qaᵋs	lē'ᴇl	ᵋwᴇl-
it is said the	one [other]	was taken around	and he	went	was

g·aᵋlī'lᴇm	lā'xa	ōgwēwalī'łaxs	la'ē	ᵋnᴇᵋma'x·ᵋīt	x·î'l-
stopped	at the	rear of house	when they	at same time	turned

p!ēd	ʟ̣ᴇ'ᵋwa	ōᵋstâlī'łᴇläxs	la'ē	wax·sanō'dxa
around	and the	door when	then they	were on each side of the

qᴇlxasē'lakwē	lᴇg̣wī'ła.	Wä,	lā'ᵋlaē	ʟ̣âᵋnā'kulāmatsᴇᵋwa
piled-up	fire.	Well,	it is said	were placed upright one after another the

maᵋlō'x̣ᵘdē	q!ā'q!ᴇk·ōxs	la'ē	lā'x·ʟānâ.	Wä,	laᴇ'mᵋlaē	häwē'xa
two former	slaves when	then they	were put on top (of pile).	Well,	then it is said they	never

g̣wā'ʟ!ᴇxʟ̣alaxs	la'ē	wē'qumāxa.	Wä,	laᴇ'mᵋlaē	łēłᴇ'ᵋla.	Wä,
screamed	when they	were shoved down.	Well,	then it is said they	were dead.	Well,

g·î′lᵋᴇmᵋlā′wisē	q!u′lx·ᵋīdᴇxs	la′ē	axᵋē′tsᴇᵋwa	maᵋłtsᴇ′mē
as soon as, it is said, they	burned to ashes	then	were taken	two

xā′xᴇxatsᴇma	qaᵋs	g·ā′xē	ha′nᴇmg·aᵋlīlᴇm	lā′xa	ōgwēwalī′łē.
small boxes	and they	came	were put down on floor	at the	rear of house.

Wā,	hē′ᵋlat!a	lē′da	ᵋnᴇ′msgᴇmēda	ōᵋstâ′līłē.	Wā,	lā′ᵋlaē
Well,	that, however, it is said,	was	one at the	door.	Well,	it is said

axᵋē′tsᴇᵋwa	g·î′lt!a	k·!îpʟā′laē	qaᵋs	k·!îp!ē′tsᴇᵋwē	xā′łxᴇqasa
were taken	long	tongs	and they	were picked up the	bones of

ᵋnāłᵋnᴇmō′kwē	q!ā′k·ō	qaᵋs	lē	k·!îpts!â′lāyō	lā′xa	ᵋnāłᵋnᴇ′msgᴇmē
each (person)	slave	and they	then	were put in with tongs	into the	one to each (round)

xā′xatsᴇma.	Wā,	g·î′lᵋᴇmᵋlā′wisē	ᵋwī′ᵋlts!âxs	la′ē	yîkuyᴇ′ntsᴇᵋwa
box.	Well,	as soon as, it is said, they	were all in	then	they were covered

yî′sēs	yē′yîkᵘyāᵋē.	Wā,	lā′ᵋlaē	ha′ng·aᵋlīlᴇm	lā′xa	ōgwēwalī′łasa
with their	covers.	Well,	it is said they	were placed on floor	at the	rear of the

ts!ā′gats!e.	Wā,	lā′ᵋlaē	mō′p!ᴇnx̣waᵋsē	ᵋnā′lās	hē	gwaē′łᴇxs
winter-dance house.	Well,	it is said,	four times day	day of	that	being thus in house

la′ē	yā′laqwēda	tētō′x̣ᵋwīdē.	Wā,	laᴇ′m	q!ulā′x·ᵋīdbōła.	Wā,
then	sang their sacred songs the	war-dancers.	Well,	then they	pretended to become alive.	Well,

laᴇ′mᵋlaē	â′lax·ᵋīd	la	ᵋyā′k·ōwē	Ts!ᴇxᵋī′dē	lā′xēq.	Wā,	lā′ᵋlaē
then it is said	truly	then	was beaten	Throw-away	after that.	Well,	it is said

Ts!ᴇxᵋī′dē	ᵋnēx·	qaᵋs	lē	wī′naxa	Mō′ts!adxwē	g·ā′sâ	lā′xa
Throw-away	said	that he	would go	make war upon the	Nootka	going through	at the

dzᴇᵋlā′łasa	ᵋnᴇ′mgēsē.	Wā,	lā′ᵋlaē	tē′nox̣ᵋwēd	lā′xa	wā.	Wā,
lake of the	ᵋnᴇ′mgēs.	Well,	it is said they	poled canoes	on the	river.	Well,

g·î′lᵋᴇmᵋlā′wisē	lā′g·aa	lā′xa	t!êx·î′lās	T!ᴇ′sē	la′ē	yū′dux̣ᵘsᴇnd
as soon as, it is said, they	went	to the	road of	Nootka Inlet	then they	in three pieces

ʟᴇ′mx·ᵋīdxēs	ᵋyā′ᵋyats!ē	qaᵋs	lā	ᵋwē′k·îlk·îlaqēxs	la′ē	ē′k·!ēᵋsta
split their	canoe	and they	went	carried it on their shoulders when	they	went up

lā′xa	nᴇg·ā′.	Wā,	g·î′lᵋᴇmᵋlā′wīsē	lā′g·aa	lāx	wās	T!ᴇ′sē
to the	mountain.	Well,	as soon as, it is said, they	came	to the	river of	Nootka Inlet

la′ē	t!ᴇ′mx·ᵋīdxēs	ᵋyā′ᵋyats!ē	qaᵋs	yō′lx·ᵋīdē	lā′xa	wā.
then they	sewed together their	canoe	and they	drifted down	at the	river.

Wā,	g·ī′lᵋᴇmᵋlā′wisē	la′x·sᴇᵋyōd	lā′xa	wāxs	la′ē
Well,	as soon as, it is said, they	arrived at mouth	at the	river	then they

sēx̣ᵘsâlē′sᴇla	lā′xa	t!ō′kwaxs	la′ē	â′ᴇm	q!ā′yaxaxs
paddled through	at a	narrow passage when	then they	only	were startled when

la′ē	ha′nłałᴇxsᴇlasōᵋsa	hā′ᴇnaʟ!ᴇmē.	Wā	laᴇ′mᵋlaē	łᴇ′ᵋlē
then they	were shot at by	arrows.	Well,	then it is said	was killed

Ts!ᴇxᵋī′dē	ʟ̣ᴇᵋwē′s	lē′ᴇlōtē.	Wā,	lā′ᵋlaē	ᵋnᴇmō′kwa
Throw-away	and his	crew.	Well,	it is said	one

q!u′laxa	g·ā′xē	aē′daaqa.	Wā,	hë′ᵋmē	q!ā′lag·iłtsa
was alive that	came	back.	Well,	that is the	reason of knowing of the

g·ā′la	Kwā′g·uł	qēxs	lᴇ′ᵋmaē	łēłᴇ′ᵋla.	Wā,	laᵋmēᵋ
first	Kwakiutl	that	they	were killed.	Well,	then

ᵋyā′k·ōwē	Ts!ᴇxᵋī′dē	lā′xēq.	Wā,	laᴇ′m	lā′ba.
was beaten	Throw-away	after that.	Well,	then	end.

A GRAPHIC METHOD OF RECORDING SONGS.

BY PLINY EARLE GODDARD.

THE phonograph is of course, for most purposes, the best apparatus for recording songs. Unfortunately the wax records of the phonograph are not so durable as could be wished. A song of inestimable value, obtained with great difficulty, may be ruined by careless handling or unavoidable accidents in transportation. The wax itself is subject to deterioration. When it is desired to publish a song so recorded, it is necessary to transcribe it. This is a task impossible to many, and not easy for any one.

By means of the kymograph and a proper recording-instrument it is possible to make a graphic record which can be calculated with great exactness, giving results which may be presented in tables showing the pitch in terms of the number of vibrations per second and the length of the notes in millimetres of space or thousandths of seconds in duration. These terms can, of course, be easily written in the usual form on a staff, but not with so great exactness.

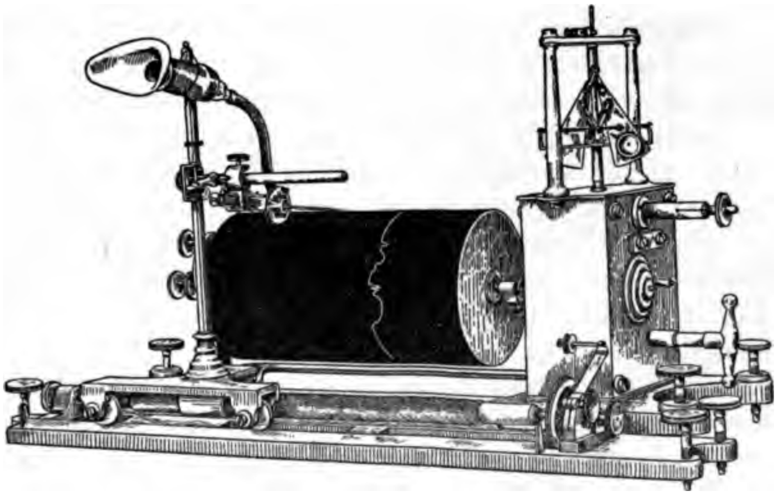


FIG. 3. KYMOGRAPH FOR PHONETIC WORK.

Fig. 3 shows the particular form of kymograph designed for phonetic work, used by Rousselot in his laboratory in Paris. The cylinder, it will be seen, is horizontal, instead of vertical as in the more common form of the machine. By means of clockwork the cylinder is driven at a very uniform rate of speed. A belt attached to the clock moves the recording-instrument slowly along, making a continuous spiral record on the smoked paper on the cylinder. An electrically controlled tuning-fork should make a tracing parallel to this, so that any variation of speed may be determined and allowed for in the computation. This is important for exact work, as it is very difficult to secure perfect evenness of motion in the cylinder.

The recorder is shown in Fig. 4. It consists of a glass disk about 2 inches in diameter and .008 of an inch in thickness, the same dimensions as those used in the phonograph-recorder. The recording-lever consists of a swinging needle attached by a rubber band to a metal support which is cemented to the exact centre of the glass disk. Over this needle is slid a straw of the proper size, straight, round, and firm. On the distal end of this straw a thin horn recording-point is glued. This horn point, being rather wide but thin, has vertical elasticity, so that it remains constantly on the surface of the paper, regardless of small irregularities, but has little sidewise movement. The recording-lever can be adjusted along the axis of the rod to which it is attached, varying its momentum and its period. By making the combined period of the disk and its attached lever equal to the average period of the voice to be recorded, waves of large amplitude may be obtained. The amplitude is also influenced by the distance of the fulcrum and the power from each other in the lever itself. Both of the adjustments are made at the same time by sliding the metal collar to which the needle is attached along the metal rod. Waves of moderate amplitude give the best satisfaction.

The cylinder needs to move with considerable speed. About twenty-eight centimetres (11⅛ inches) per second have been found to separate the waves from each other sufficiently without obscuring their individuality.

If a horn is employed in making the record, the subject must be urged to considerable loudness in his singing in order to secure waves of proper amplitude. This necessity may be avoided by using a mouthpiece like that shown in Fig. 4 pressed close to the lips. By its use the quality of the sound may be somewhat modified, but the relative duration and pitch of the notes of the song will be unaltered.

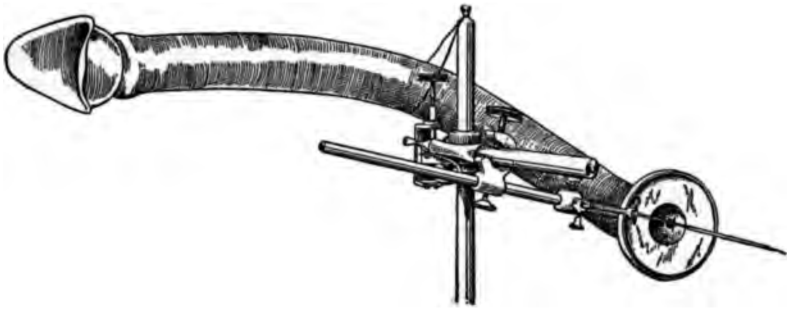


FIG. 4. VOWEL-RECORDER.

When the record has been made, the paper is removed from the drum, passed through a solution of shellac, and dried. The result is an exceedingly durable record, which occupies but little space in storage. The interpretation of the record presents little difficulty. In most cases the various notes are separated from each other by consonants, which appear upon the record as smooth straight lines. The sounds *y, w,* and *l* appear in the same form as the vowels; namely, as small regular waves imposed upon the line. When two vowels come next to each other in succeeding notes, or have one of these three vowel-like sounds between them, the division between the notes must be determined by the change in pitch, which will be found to produce rather definite changes in the shape of the waves, and usually will easily be found by the unaided eye. The length of the notes is then determined by means of a finely graduated rule, and may be easily turned from linear measure into fractions of seconds. The relative pitch of the notes is found by dividing their length in millimetres or seconds by the number of waves which they contain. The results are the lengths of the individual waves, which are inversely proportional to their frequency. If the exact pitch rather than the relative pitch is desired, the millimetres of length must be translated into seconds of duration by reference to the parallel tuning-fork tracing. With proper care in measuring, the frequency is secured within two units of exactness. Much greater exactness in measuring may be obtained, if a photographic negative is made of the record, and the measurements made under a compound microscope with an eyepiece micrometer.

The song presented in Plate IX and the table on p. 141 was sung by a Hupa young man who makes no pretence of being a singer. In fact, he first absolutely declined to sing, on the ground of lack of ability. An examination of the record shows the beginning of several notes, with a number of waves at a different, usually lower, pitch than the remainder of the note. It seems probable that this is not intentional with the singer, but due to a lack of training in attacking his notes. It seems probable that, with the exception of the one high note, only three different pitches are intended in this song. If that is the case, the singer has not found his pitch with exactness. The fourth and fifth notes agree, but both are flatter than the second note. The seventh and ninth notes also are in agreement with each other, but a trifle flatter than the first note. Since no parallel tuning-fork record was made for verifying the speed of the machine, it is possible that a slight acceleration in the cylinder is responsible for the discrepancy. There is also some variation in frequency between the corresponding notes of the two parts of the song, which are said by the singer to be identical, with the exception of the high note in the first part. It is somewhat uncertain what was the intention in the matter of the pitch of this high note. The record seems to be imperfect toward the end of the note. It seems probable that the singer had difficulty in reaching it, but that it is intended for *b* (240). If this is the case, 160, 180, 200, and 240 are the frequencies found in the song. They are so associated as to present the following intervals: a fourth, major second, major third, minor third, and the interval between g♯ and f♯ (9 : 10).

Table representing Hupa Song.

	Length of Equal Frequencies in mm.	No. of Waves.	Length of Waves in mm.	Frequency.	Nearest Note.	Frequency as written by Ear.	Length in mm. by Graphic Method.	Length by Ear, 100 = Half-Note.
	22	14	1.57	185				
ûn	105.5	71	1.48	197	g#	200	125.5	75
na	68	42	1.62	180	f#	180	68	25
	43	23	1.87	155½				
a	69.5	38	1.83	159	e	160	112.5	100
	22	12	1.83	159				
ûn	98.5	60	1.64	177½	f#	180	120.5	100
	21	12	1.75	166				
na	74.5	45	1.65	177	f#	180	95.5	50
ûn	42.75	34	1.25	233	a#, b	240	43	50
na	98	65	1.50	194	g	200	98	75
we	37.5	24	1.56	186½	f#	180	37.5	12.5
	53.5	36	1.49	195½	g	200	53.5	12.5
e	136	75	1.81	161½	e	160	136	100
ûn	109	73	1.49	195½	g	200	109	75
na	56	34	1.65	177	f#	180	56	25
a	102	56	1.82	160	e	160	102	100
ûn	123.5	69	1.80	162	e	160	123.5	100
na	80.5	44	1.83	159	e	160	80.5	50
	18.75	12	1.56	186½				
ûn	91	63	1.44	202½	g#	200	110	75
na	64	39	1.62	180	f#	180	64	25
a	115	64	1.80	162	e	160	115	100
	12.5	7	1.80	162				
ûn	99	61	1.62	180	f#	180	111	100
	14.5	8	1.81	161½				
na	47	29	1.62	180	f#	180	61	50
	40	22	1.82	160	e			
ûn	33.5	22	1.53	190	g	200	73	50
	24	15	1.60	182	f#		24	
na	77	52	1.46	199½	g#	200	77	75
we	50.5	31	1.63	178½	f#	180	50	12.5
	40	28	1.43	203½	g#	200	40	12.5
e	156	86	1.80	162	e	160	156	100
ûn	89	61	1.46	199½	g#	200	89	75
na	62.5	39	1.60	182	f#	180	62	25
a	101	55	1.83	159	e	160	101	100
ûn	93	51	1.82	160	e	160	93	100
na	64	35	1.83	159	e	160	94	50

In the matter of the length of the notes, there seems to be little agreement. There are several notes in the neighborhood of 100 mm. in length, a number approximately one-half as long, and others of unclassified lengths. It is not probable that the Hupa conform to our division of time into halves, quarters, eighths, sixteenths, and their extension by means of dotting.

Miss May E. Lee, who has had the advantage of considerable musical training, noted this song from the lips of the same singer and from a phonograph-record made by him. Her notation, which has been added to the table for the sake of comparison, is here given:—

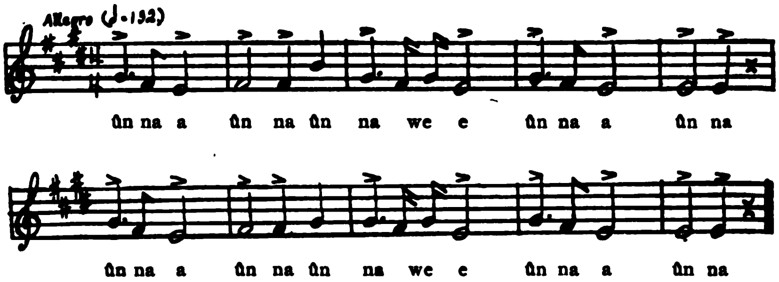
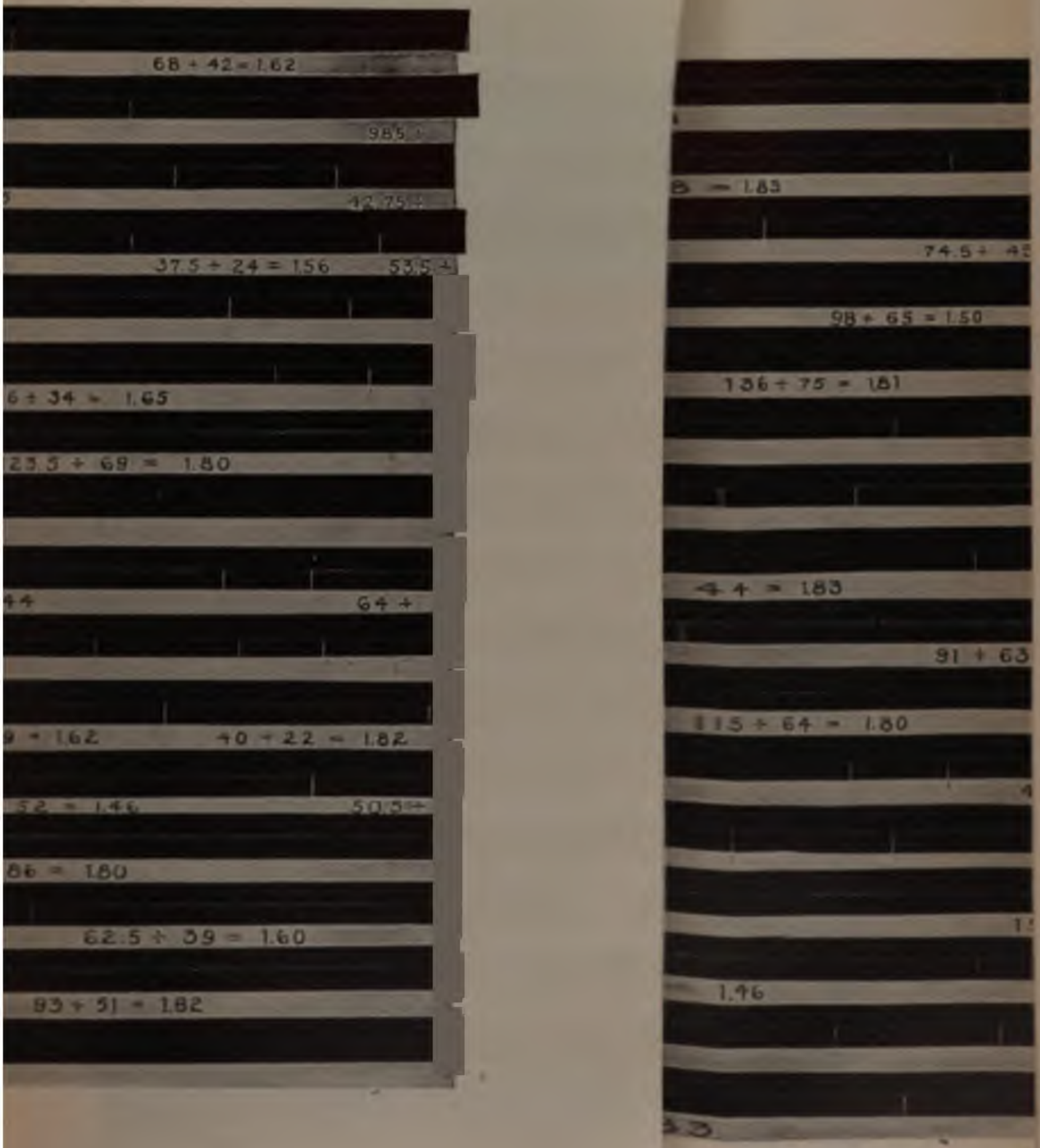
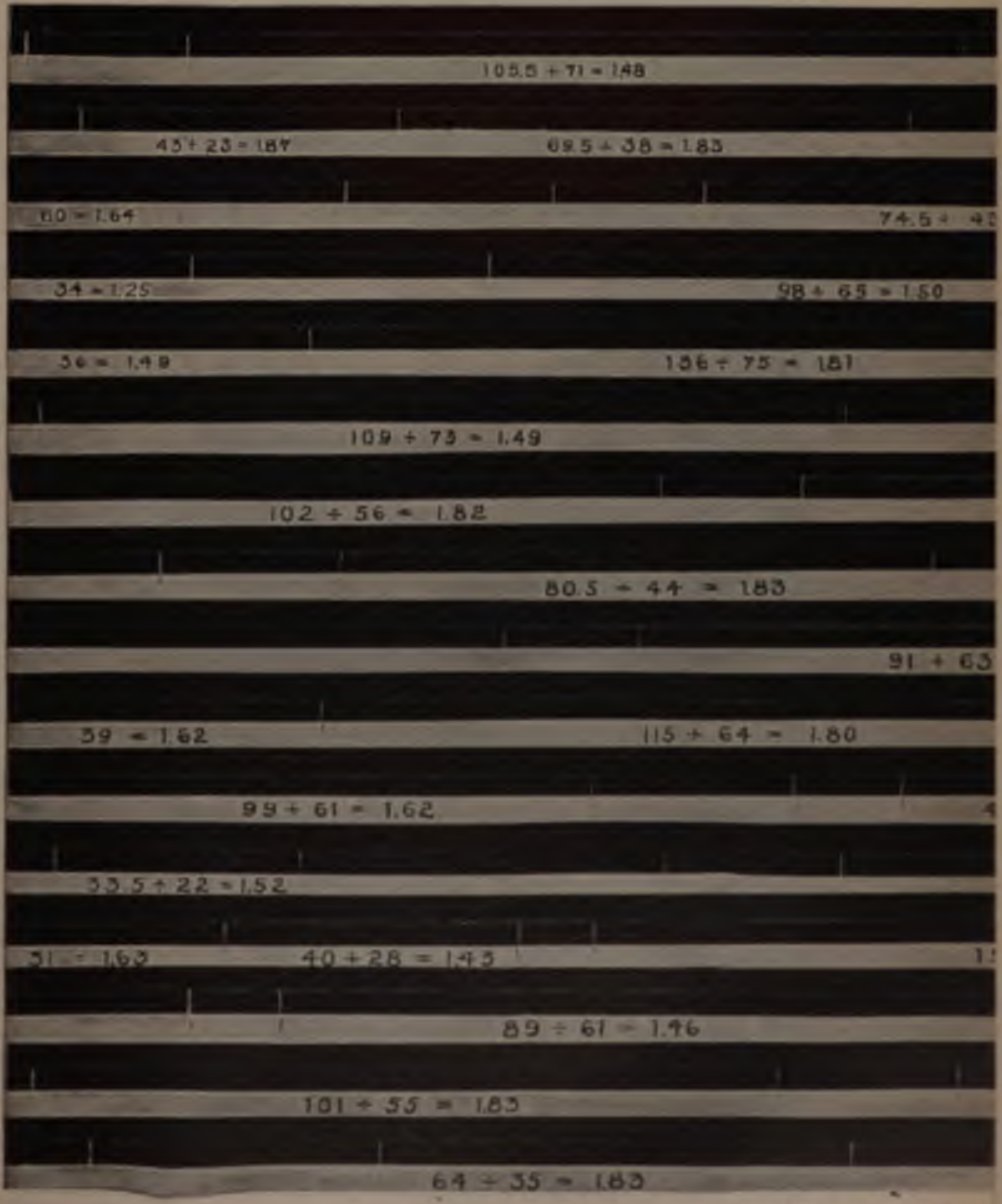

Allegro (♩=132)
ûn na a ûn na ûn na we e ûn na a ûn na
ûn na a ûn na ûn na we e ûn na a ûn na

PLATE IX.



SIONG AS RECORDED BY THE KYMOGRAPH.



Hupa Song as recorded by the Kymograph.

SCAPULIMANTIA.

VON RICHARD ANDREE.

DIE chaldäische Magie ist eine der ältesten ihrer Art und am besten ausgebildet. Für uns ist sie deshalb von besonderem Belang, weil Europas Aberglauben und Zauberei sich teilweise unter chaldäischen Einwirkungen entwickelt haben. Unmittelbare Berührung fand wohl zunächst durch die Kämpfe der Griechen in Asien statt, und wir wissen, dass nach der Eroberung Persiens durch Alexander den Grossen Griechenland von Magiern gleichsam überschwemmt wurde. Ägyptische Magie kam viele Jahrhunderte später durch die Araber hinzu und durchsetzte gleichfalls das, was an Zauberei und Aberglauben in Europa schon ursprünglich vorhanden war, mit neuen magischen Stoffen, die bis auf den heutigen Tag fortwirken.

Aber noch eine andere Quelle unserer europäischen Zauberei hat, wenn auch in ungleich geringerem Masse, eingewirkt, die in Spuren noch heute aufzufinden ist. Ich meine die Scapulimantia, das Wahrsagen aus dem Schulterblatte eines Säugetiers, das, wie ich glaube, seinen Ursprung bei den nomadischen Völkern Innerasiens hatte und von hier aus sich concentrisch ausbreitete.

Beim Schulterblattorakel handelt es sich um jene Art von Weissagung, die sich mit dem, was in der Zukunft geschehen wird, beschäftigt und dies durch eine besondere Manipulation zu ergründen sucht. Eine geheime Kunst, die etwa an eine Priesterkaste geknüpft und von dieser sorgsam bewahrt und vererbt wird, kommt dabei nicht in Frage. Im Gegenteil, das Verfahren liegt offen zu Tage und wird von Priestern wie Laien ausgeübt; nur ist erforderlich, dass sie genau damit vertraut sind, Erfahrung darin besitzen und die sich dabei ergebenden Zeichen, deren Bedeutung feststeht, zu deuten wissen. Die Scapulimantia ordnet sich ein in die ausserordentlich mannigfaltigen Arten, auf verschiedene Weise die Zukunft zu erforschen, von denen ja kein Volk frei ist, aber sie ist dadurch von allen anderen Methoden unterschieden, dass sie dabei einen besonderen Gegenstand zur Grundlage ihrer Zauberei nimmt, nämlich das auffallend geformte Schulterblatt (*scapula*) eines Säugetiers, vorzugsweise eines Schafes. Der glatte, dünne Knochen von dreieckiger Gestalt, mit dem eingeschnürten Halse (Gelenkknopf) und dem auf der hinteren Fläche hervortretenden scharfen Schulterkamme musste unter den übrigen Knochen des Säugetiergerippes Aufmerksamkeit erregen. Die Aufmerksamkeit steigerte sich, wenn man erkannte, dass beim Braten des Schulterstücks im Kohlenfeuer Sprünge und Risse in dem dünnen Teile des Knochens entstanden, die sich oft in gleicher oder sehr ähnlicher Weise wiederholten, und die durch das verschiedene, bald dünne, bald stärkere Gefüge des Knochens, in Gestalt und Verlauf bedingt waren. Die Betrachtung dieser Risse, ihre Länge, ob sie quer oder lang gingen, ihre gegenseitige Verbindung oder ihre Vereinzelung führten dann dazu, sie mit zukünftigen Geschehnissen zu verknüpfen und sie als Orakel zu benutzen. Wie dieser Übergang von der Betrachtung und Beobachtung zur Wahrsagerei erfolgte, und in welcher weit zurückliegenden Zeit dies geschah, darüber wissen wir nichts. Hierbei kann Erfahrung, ein zufälliges Zusammentreffen zwischen den Rissen mit einem späteren Ereignisse und der Combination von beiden, eine Rolle gespielt haben, etwa in ähnlicher Weise, wie bei dem noch heute geübten Gänsebeinorakel, aus dem man, je nach der Farbe des „Schlittenknochens" der Gans, auf einen kommenden strengen oder milden Winter schliesst.

Die Scapulimantia zeigt also, insofern es sich um einen Knochen und Beobachtung von dessen Aussehen handelt, einige Verwandtschaft mit dem Gänsebeinorakel, andererseits aber wieder mit der Chiromantie, der Wahrsagung aus den Linien der Hand, die, wie wir durch Cicero und Juvenal wissen, schon den Römern bekannt war, aber erst durch die Zigeuner in Europa stark entwickelt wurde, und die noch heute bei abergläubischen Leuten eine Rolle spielt. Auch hier kommt es auf die Länge, Stellung, Combination der Linien der Handfläche in Verbindung mit der Astrologie an.

Wie bestimmte Züge von gleichem Gepräge und unzweifelhafter Übereinstimmung in einer Kette von Märchen und Sagen auf eine gemeinsame Quelle hinweisen, so ist es auch beim Schulterblattorakel, das sich auszeichnet durch die Verwendung des dabei benutzten Knochens, der gleichsam als „Leitfossil" dient, um den Zusammenhang der weit verbreiteten Scapulimantia darzutun, so vieles auch im einzelnen dabei verschieden sein mag. Wenn es richtig ist, dass wir da den Ursprung eines Brauchs, einer Sitte, eines Gegenstands am ehesten zu suchen haben, wo sie am weitesten verbreitet sind und zu der reichsten Entwicklung gelangten, dann dürfen wir auf Innerasien, auf die dort seit Urzeiten ansässigen mongolischen Völker als Quelle des Schulterblattorakels hinweisen. Hier, bei viehzüchtenden Nomaden, deren Fleischnahrung zum grossen Teile vom Schafe geliefert wird, mag die Betrachtung der Sprünge des gerösteten Schulterblatts zuerst zu magischen Deutungen geführt haben, die alsdann kreisförmig vom Mittelpunkte, namentlich nach Norden und Westen, sich ausbreiteten.

Viehzucht und damit verknüpfte Fleischnahrung mögen also ursprünglich eine Hauptgrundlage der Ausbildung gewesen sein, wenn auch nicht unerlässlich, da wir das Orakel auch, wiewohl seltener, am Schulterblatte von Jagdtieren ausgeübt finden. Aber es findet anderweitig auch eine Begrenzung da statt, wo die Schafzucht z.B. keinen Eingang fand. Trotz der nahen Nachbarschaft der die Scapulimantik am ausgedehntesten übenden Mongolen hat sie in China keinen Eingang gefunden. Das Schaf ist dort nur als eingeführtes Haustier im Norden bekannt, in Indochina spielt es keine Rolle, in Annam und Japan fehlt es,[1] und dort fehlt auch überall das Schulterbeinorakel.

Bei den mongolischen Völkerschaften Innerasiens, denen wir uns aus dem angeführten Grunde zunächst zuwenden müssen, spielt das Schulterblatt, auch abgesehen von seiner Verwendung zum Wahrsagen, eine abergläubische Rolle. Wenn es gekocht und rein abgenagt ist, darf es nicht unversehrt gelassen werden, was als schwere Sünde gilt, sondern es muss zerbrochen werden.[2]

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[1] EDUARD HAHN, Die Haustiere (Leipzig, 1896), S. 165.

[2] N. v. PRSHEWALSKI, Reisen in der Mongolei (1877), S. 47.

Der Glaube an das Zutreffen des Schulterblattorakels ist bei den mongolischen Völkern unbegrenzt. „Hunderte Male," sagt Prshewalski, „überzeugt sich der Nomade, dass er belogen worden ist, und doch wird sein kindlicher Glaube nicht wankend. Wenn es dem Betrüger nur einmal gelingt, das Richtige oder etwas, das als richtig gedeutet werden kann, zu treffen, so vergisst man alle seine falschen Vorhersagungen, und sein Ruhm erklingt von einem Ende der Wüste zum anderen. Übrigens lügen sich diese Leute so in ihre Macht und Wissenschaft hinein, dass sie selbst an ihre übernatürliche Kraft glauben."[1] Das wird bestätigt, wenn wir die Berichte, die darüber von den einzelnen mongolischen Völkern vorliegen, vergleichen, wobei wir mit einer bald 700 Jahre alten Schilderung beginnen können.

Im dreizehnten Jahrhundert hatte sich ein lebhafter Verkehr zwischen dem christlichen Abendlande und den Nachfolgern Dshingis-Chans in Innerasien entwickelt, die von den Christen als Bundesgenossen gegen die vordringenden Mohamedaner angesehen wurden. Geistliche Sendboten gingen zu den mongolischen Herrschern, unter ihnen auch, von Ludwig dem Heiligen von Frankreich (1253) entsendet, der Mönch Ruysbroek oder Rubruquis. Er gelangte bis Karakorum zum gewaltigen Mongolen-Chan Mangu, an dessen Hof er das Schulterblattorakel beobachten konnte, von dem wir so die älteste Beschreibung erhalten. Vor dem Herrscher, der vor einer Unternehmung stand, erschien ein Diener, der mehrere Schulterknochen von Widdern brachte, die schwarz wie Kohlen gebrannt waren. Nichts, so erklärte man dem christlichen Mönche, unternehme Mangu, ohne vorher die Knochen um Rat gefragt zu haben. Er liess sich drei frische, ungebrannte Schulterbeine bringen, schaute sie sinnend an und dachte sich bei jedem etwas, was auf die zukünftige Unternehmung Bezug hatte, ob er handeln solle oder nicht. Dann wurden die Knochen in der Nähe seines Zeltes in zwei kleinen, besonders für diesen Zweck errichteten Häuschen dem Feuer ausgesetzt und, wenn sie schwarz gebrannt waren, dem Chan übergeben. Aufmerksam beschaute dieser dann die durch die Glut entstandenen Risse. Gingen sie der

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[1] N. v. Prshewalski, S. 69.

Länge nach, so war dieses ein günstiges Zeichen, das ihn zur Ausführung des geplanten Unternehmens veranlasste; gingen sie aber quer oder waren kleine Knochenstückchen herausgesprungen, so unterblieb dieses.[1]

Seit dieser ältesten Erwähnung des Orakels bei den Mongolen sind beinahe 700 Jahre verflossen, aber unverändert besteht es nicht nur heute kräftig fort, sondern es hat sich auch von dort aus über einen grossen Teil der alten Welt verbreitet. Bei den heutigen mongolischen Völkern zeigt das Verfahren grosse Übereinstimmung. Die genauesten Nachrichten über das Weissagen aus den Schulterblättern bei den *Kalmüken* enthält noch immer der alte PALLAS.[2] Er glaubt sogar, dass es wegen der „wirklich oft zutreffenden Ausübung merkwürdig" sei. Das Verfahren selbst heisst bei den Kalmüken *dalla tüllike,* und diejenigen, die es ausüben, sind die *dallatshi,* nicht etwa Geistliche, sondern Laien, welche die Sache aus langer Erfahrung kennen und sich nach einer *Dalla* betitelten Schrift richten. Bei den Lamaisten sind auch besondere Gebete an den Gott der Ärzte vorgeschrieben, die, während das Schulterblatt auf den Kohlen liegt, gemurmelt werden. Man benutzt die Schulterknochen von Schafen, von Saigaantilopen, von Rehen oder Renntieren, während das Schulterblatt vom Hasen nur für einen Tag zum Wahrsagen taugt, jenes vom Wildschwein nur zur Vorhersage einer ergiebigen oder schlechten Wildschweinjagd dient. Das zu verwendende Schulterblatt wird mit dem Fleische gekocht, und dieses dann mit einem Messer vollständig entfernt; Abnagen mit den Zähnen ist verboten. Wird das Orakel für eine abwesende Person angerufen, so ist zu deren Stellvertretung eines ihrer Kleidungsstücke oder ein ihr gehöriges Hausgerät mit zur Stelle zu bringen. Der Schulterknochen wird auf gut ausgebrannte Kohlen gelegt, bis er genügend Risse bekommen hat, aus deren Lage, Verhältnissen und Verbindung der *dallatshi* dann den Ausgang einer Sache, Glück oder Unglück, Leben oder Tod verkündigt.

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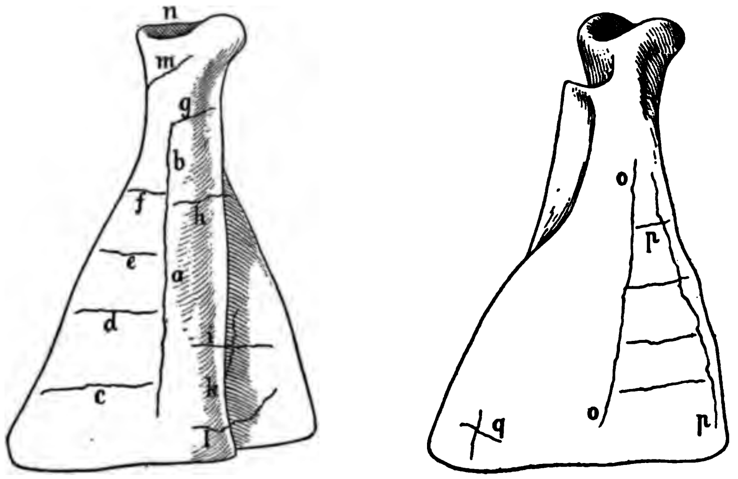
[1] RUBRUQUIS bei J. PINKERTON, A General Collection of the Voyages and Travels (London, 1811), Vol. VII, p. 65.

[2] P. S. PALLAS, Samlungen historischer Nachrichten über die mongolischen Völkerschaften (St. Petersburg, 1776, 1801), Band II, S. 350 und Tafel 20.

Wohl durch die natürliche Beschaffenheit des Schulterblatts bedingt, treten gewöhnlich gewisse Hauptlinien zu Tage, die eine jede ihre eigene Bedeutung und Benennung haben. Pallas hat sie auf den hier wiedergegebenen Abbildungen dargestellt.



a *b*

Fig. 5. Schulterblattorakel der Kalmüken (nach Pallas).

Fig. 5, *a,* zeigt die Oberseite des linken Schulterknochens nach dem Brande, und hier bedeutet die Linie *a* Weg des Lebens; sie „ist ein Lebenszug oder die Linie der Geschäfte mit den Hindernissen oder Umständen, die dabei vorkommen können.“ *b* deutet auf Hindernisse und Unglück. *c* deutet auf den Tod eines Fürsten. *d* zeigt den Tod eines Edlen an. *e* deutet den Tod eines gemeinen Mannes an. *f* bedeutet den Tod eines Sklaven. *g* deutet auf baldiges Glück. *h* zeigt spät eintretendes Glück an. *i* sehr spät eintretendes, dafür aber dann auch dauerhaftes Glück. *k* Schwanzriemen am Sattel, deutet auf Hindernisse und Verzug. *l* Streit- und Jagdlinie. Wenn die Sprünge von beiden Seiten am Schulterkamme (*spina scapulae*) zusammenstossen, so treffen die streitenden Parteien auf einander; bleiben die Risse getrennt, so kommen sie auch nicht zusammen. Desgleichen deutet dieser Riss auf gute oder schlechte Jagd. *m* Schlinge, ein Riss am eingeschnürten Halse der Scapula, zeigt den Tod eines Kranken an, oder, dass man verlorenes Vieh bald wieder erhält. *n* Kessel, die Gelenkgrube der Scapula, deutet auf Fülle oder Mangel, je nach den darin befindlichen Zeichen.

Auf der unteren Seite des Schulterblattes (Fig. 5, *b*), wo sich weniger Risse zeigen, ist deren Bedeutung folgende:—

oo Einwirkung böser Geister. *pp* Einwirkung guter Geister. *q* Nachrichten, späte, wenn es nur ein einfacher, baldige, wenn es ein Kreuzriss ist.

Wie bei den Kalmüken, ist das Wahrsagen aus dem Schulterblatte auch bei den benachbarten *Kirgisen* sehr im Schwunge, die, obwohl Mohamedaner, viele heidnische Gebräuche beibehalten haben, und bei denen sowohl gewerbsmässige Wahrsager als Laien sich mit dieser Kunst beschäftigen. Potanin,[1] der uns die genaueste Auskunft hierüber gibt, sagt, dass das Fleisch von der Scapula des Schafes nicht mit dem Messer entfernt

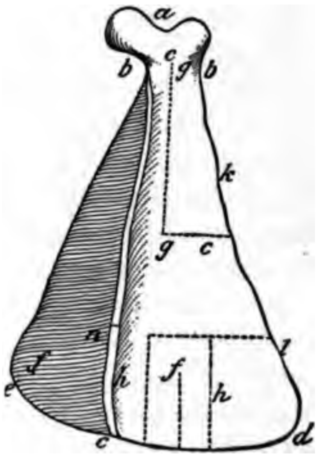


Fig. 6. Schulterblattorakel der Kirgisen (nach Potanin).

Hier bedeutet *a* Kessel; *bb* Hals des Schulterblatts; *c* ist der Grat; *d* das Ohr, der rechte Winkel der Scapula; *e* die Stirn, der linke Winkel; *f* ist der Schoss; *be* der Rand; *bd* der Hauptweg; *gg* der Schwanzriemen, d. h. parallele Risse zu beiden Seiten des Grates; *hh* die Rede oder Nachricht; *ii* Scheidewand, Hindernis (ist in der Zeichnung nicht angedeutet); *k* der Weg beim nahen Volke; *l* der Weg beim weiten Volke; *m* gute Nachricht; *n* der Mund des Pferdes. Ein Riss auf der glatten Fläche bei *b* bedeutet, dass man Diebe gebunden bringen wird.

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[1] Potanin bei W. Radloff, Aus Sibirien (Leipzig, 1884), Band 1, S. 475.

werden dürfe; auch muss das Schulterblatt nach der Benutzung zerbrochen werden, weil es sonst dem Hause Unglück bringt. Wenn der Wahrsager seine Prophezeiung beendigt hat, wobei er stets mit dem Rücken gegen die Türe gewendet sitzt, so wirft er das Schulterblatt hinter sich; trifft dieses dann die obere Lage der Tür, so geht alles Vorausgesagte in Erfüllung. Das Schulterblatt heisst bei den Kirgisen *dshaurum,* die glatte Fläche *alakan* „Handfläche." Die einzelnen Teile der Scapula führen bei den Kirgisen ganz bestimmte Namen, die aus Potanin's Abbildung ersichtlich sind, und die auf ihr entstandenen Risse und Sprünge werden ähnlich gedeutet, wie bei den Kalmüken, was auf eine gleiche Quelle derselben schamanistischen Handlung hinweist (Fig. 6). Auch Bezeichnungen wie „Hals" und „Schwanzriemen" sind bei beiden Völkern die gleichen.

Die gleichfalls mongolischen *Buräten* am Baikalsee sind jetzt Buddhisten geworden, doch haben sich aus der nicht fern zurückliegenden Zeit ihrer alten Religion noch manche schamanistische Bräuche bei ihnen erhalten, und zu diesen gehört auch die Scapulimantik. Im Dorfe Stepno-Dworezkin hat sie ADOLF BASTIAN beobachten können.[1] Dem Schamanen, der dort der Zeichendeuter ist, musste ein lebender Hammel gebracht werden, dem das Schulterblatt entnommen wurde; er sollte ermitteln, wohin eine auf der Reise verlorene Kiste geraten sei, und erteilte nach dem Befunde des Schulterblatts eine doppelsinnige Antwort. Dass, wie zu erwarten ist, auch die *Tungusen,* besonders deren Schamanen, aus den gerösteten Schulterblättern der Schafe wahrsagen, bestätigt GEORGI.[2]

Wie mit den Völkern mongolischen Stammes sich die Prophezeiung aus der Scapula weiter ausbreitete, vermögen wir am Beispiele der zu ihnen gehörigen *Hazarah* nachzuweisen, welche im nordöstlichen Iran zwischen Herat und Kabul wohnen. Sie befragen noch jetzt das Orakel, und als im verflossenen Jahrhundert ein indischer Fürst einen Feldzug antreten wollte, liess er die in seinem Lager befindlichen Hazarah das

[1] Geographische und ethnologische Bilder (Jena, 1873), S. 405.

[2] Bemerkungen auf einer Reise im Russischen Reiche, Band 1, S. 285.

Schulterblatt darüber entscheiden, ob sein Unternehmen von Erfolg begleitet sein würde.[1]

Diese Beispiele mögen genügen, um das Vorkommen der Scapulimantik bei den verschiedenen Gliedern des mongolischen Stammes nachzuweisen. Auch zu den ethnisch nicht zu den Mongolen gehörigen Völkern an der äussersten Ostspitze Asiens ist das Schulterblattorakel vorgedrungen, da es sowohl bei den *Tschuktschen* als den *Korjäken* beschrieben wurde. BOGORAS[2] erwähnt es bei ersteren, wo das geröstete Schulterblatt des Renntiers darüber befragt wird, ob das Lager verlegt, oder eine Reise angetreten werden soll. Bei den *Korjäken* findet das Orakel Verwendung bei deren Walfischfesten, wenn im Triumph ein Weisswal oder Seehunde als willkommene Beute heimgebracht, und hierbei verschiedene Ceremonieen veranstaltet werden. Die Schmausereien werden mit dem Orakel beschlossen, das den Zweck hat, zu ergründen, ob der erlegte und verzehrte Wal wieder in das Meer zurückkehrt und dort andere Wale zum Besuche der Korjäken veranlassen wird. Dazu ist ein Zeichen notwendig, welches das Meer vertritt und auf dem Schulterblatte eines Seehundes erscheint. Zwei alte Männer führten das Orakel aus, indem einer das Schulterblatt in der Hand hielt, der andere glühende Kohlen darauf schüttete, bis sich Sprünge zeigten. Der erste entstandene Sprung verlief parallel mit der Längsseite des Schulterblatts, was Missfallen bei den Anwesenden erregte, denn eine solche Linie bedeutet festes Land und Gebirge, während man die Seelinie verlangte, die ferneren Walfang verkündigt. Allgemeine Freude herrschte daher bei den Korjäken, als auch die andere Linie, welche die erste durchkreuzte, erschien und die glückliche Heimkehr des Wals in sein heimatliches Meer anzeigte.[3]

Verfolgen wir nun, nachdem wir vom Mittelpunkte Asiens und der dort heimischen Scapulimantik bis zum äussersten Osten des Erdteils vorgedrungen sind, ihre Verbreitung nach Westen und Südwesten zu. Am unteren Indus finden wir sie wieder bei mohamedanischen Völkern, den *Sindhi* und *Baludschen,* die zu den Ariern gerechnet werden. Bei ihnen heisst diese Art der Zauberei *phannia jo fannu* und ist dadurch vor der mongolischen, die Grundlage bildenden Methode ausgezeichnet, dass hier ein neues Element hinzutritt und mit ihr verschmilzt, nämlich die Astrologie. Über dieses Verfahren sind wir genau unterrichtet.[1] Diese Völker teilen, den zwölf „Häusern" des Tierkreises entsprechend, den Schulterknochen in zwölf Abteilungen, die quer über das Blatt verlaufen, und zwar wird die hintere Seite der Scapula benützt, die von dem Schulterkamme (*spina scapulae*) der Länge nach in zwei ungleiche Hälften geteilt ist. In der schmäleren Hälfte verlaufen, vom Gelenkkopf ausgehend, nach unten zu die ersten sechs Häuser, den Tierkreisbildern des Widders, Stiers, der Zwillinge, des Krebses, des Löwen und der Jungfrau entsprechend (Fig. 7, *1–6*), während die breitere Abteilung (Fig. 7, *7–12*) die Zeichen der Wage, des Skorpions, des Schützen, des Steinbocks, des Wassermanns und der Fische umfasst. Diese Form der Scapulimantik in Verbindung mit dem Tierkreise ist jedoch bei den gewöhnlichen bäuerlichen Wahrsagern, weil schon höhere Kenntnisse erfordernd, nicht

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[1] CHARLES MASSON, Narrative of Journeys in Balochistan, Afghanistan and the Pandjab (London, 1842), Vol. III, p. 334.

[2] American Anthropologist, N. S., Vol. III, p. 96.

[3] JOCHELSON, The Koryak (Publications of the Jesup North Pacific Expedition, Leiden, 1905, Vol. VI, pp. 73, 74).

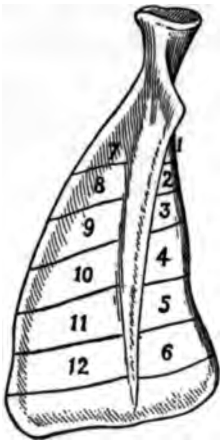

Fig. 7. Schulterblattorakel der Sindhi (nach Burton).

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[1] Richard F. Burton, Sindh and the Races that inhabit the Valley of the Indus (London, 1851), pp. 189–192.

im Gebrauch, und diese sind es gerade, die dort das Orakel am meisten ausführen,[1] was wohl dafür spricht, dass die Astrologie erst später der Scapulimantik hinzugefügt wurde. Zur Ausführung der Zauberei wird ein tadelloser Widder oder eine Ziege gewählt, deren Fell ohne Fehl sein muss. Das Tier wird nach mohamedanischer Art im Namen Gottes geschlachtet, und das Fleisch mildtätigen Zwecken anheimgegeben. Die rechte Schulter wird während der dunklen Hälfte eines Monats zu Rate gezogen, die linke während der hellen Hälfte. Die Deutungen für die einzelnen Häuser sind nun der Reihe nach folgende: —

1 beantwortet die Frage nach dem Charakter von Personen, mit denen man zu tun hat. Glattes Haus ohne Loch deutet auf einen guten Menschen. Das Gegenteil zeigt einen schlechten, aber auch Krankheit und plötzlichen Tod an.

2 betrifft die Herden. Klar und rein deutet auf Vermehrung und reichliche Weide. Rote und weisse Streifen zeigen Räuber an, die der Herde schaden.

3 bezieht sich gleichfalls auf die Herden. Ist dieses Haus rauh und uneben, dann werden die Schafe unter der *takanu* genannten Seuche leiden.

4 bedeutet ein Haus, das auf Berge und Hügel Bezug hat. Ist es dunkel gefärbt, dann wird dort viel Gras wachsen, während helle Farbe das Vieh mit Hungersnot bedroht.

5 Wenn weiss und klar, steht viel Regen, Hagel und Eis in Aussicht.

6 bezieht sich auf Krankheiten des Befragenden. Er braucht nichts zu fürchten, wenn die Oberfläche dieses Hauses von reiner, klarer Farbe ist; erscheint sie dagegen unrein und wolkig, dann folgen für ihn drei schlimme Monate; besonders ungünstig ist die Prophezeiung im Falle, wenn Löcher in diesem Hause vorhanden sind.

7 bedeutet das Haus, das Hochzeiten betrifft. Ist es dunkel gefärbt, und reicht diese Färbung bis an die Grenze des Hauses, ohne darüber hinauszugehen, dann verläuft die Ehe glücklich. Bei rein weisser Farbe droht aber Unheil. Rot deutet auf Krankheit und Tod der Braut.

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[1] Richard F. Burton, l. c., p. 404.

8 warnt vor Plünderungen durch Räuber. Ist das Haus weiss und klar, dann kann man unbesorgt sein; schwarze Punkte deuten Kampf mit ihnen, aber mit glücklichem Ausgange an; Löcher zeigen Gefahr, Wellenlinien das Auftreten von Heuschrecken an.

9 entscheidet über das Schicksal von Städten und Ortschaften. Weisse Farbe zeigt Gutes für sie an, wellige Linien erfolgreichen Handel, Löcher warnen vor Seuchen. Zahlreiche Ehen erfolgen in der Stadt, wenn das Haus rot gefärbt ist.

10 bedeutet ein kriegerisches Haus, auf Armeen und Feinde bezüglich. Weiss, wie gewöhnlich, Glück bedeutend, schwarz viel Blutvergiessen anzeigend; rot bezieht sich auf Krieg und Plünderung. Wellenlinien deuten auf Niederlage, Löcher auf grosse Leiden.

11 bedeutet das Haus der Ebenen und Grasweiden; sie werden üppig stehen, wenn die dunkle Farbe herrscht, dürr und mager bei weisser.

12 deutet auf die Ankunft von Karawanen. Ein gutes Zeichen sicherer Ankunft ist die wolkige, weisse Färbung; schwarz, dass viele Karawanen kommen; rein weiss, dass die Reisenden Wassermangel leiden; rot, dass ihnen Unheil widerfährt.

Eine besondere Deutung erfährt auch die Höhlung im Gelenkknopf, in welche der Oberarm eingreift. Rein und weiss, bezeichnet er, dass der Mann, der das Schaf schlachtete, tapfer und fromm ist, was natürlich des Wahrsagers Ansehen erhöht. Dass der Schafknochen vor dem Gebrauche dem Feuer ausgesetzt werde, ist im Berichte nicht gesagt, wohl auch nicht wahrscheinlich, da von Rissen keine Rede ist.

Noch weiter westlich treffen wir die Scapulimantik im Kaukasus bei den *Tscherkessen,* wo sie namentlich Verwendung findet, um die eheliche Treue des Weibes zu prüfen. HAXTHAUSEN[1] erzählt, wie ein Tscherkesse nach dem Essen das Schulterblatt untersuchte und daraus erkannte, dass ein anderer sich bei seinem Weibe befinde; sofort wirft er sich auf sein Pferd, reitet nach Hause und trifft dort als unschuldige Ursache des bestätigten Orakels seinen Bruder, der ihn besuchen wollte. Ähnliche bestätigte Weissagungen berichtet W. SCHOTT,[2] der auch hinzufügt, dass bevorstehende Ernten, Miss-wachs, eintretende Kälte und Schnee auf diese Art erkundigt werden.

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[1] Transkaukasia (1856), Band II, S. 172.

[2] Die alte Religion der Tscherkessen in Erman's Archiv für wissenschaftliche Kunde von Russland (1842), Band II, S. 122.

Auch bei den *Arabern* ist das Schulterblattorakel bekannt, wenn es auch bei diesem weit verbreiteten Volke nicht gerade häufig zu sein scheint. Im Süden der arabischen Halbinsel, in Oman, wird es wiederholt von WELLSTED[1] erwähnt. Man brennt dort den Knochen, "from which the practitioner pretends to obtain portentous information by means of certain mystical characters which appear after partial calcination." Für die Araber des benachbarten Hadhramaut hat VON WREDE[2] bestätigt, dass die dortigen Beduinen aus den Zeichen eines Kamel- oder Schafschulterblattes sich darüber schlüssig machen, ob sie zu einer Unternehmung ausziehen sollen, da sie daraus dessen guten oder schlechten Ausgang erkennen. Bei den heidnischen Arabern war die Scapulimantik unter dem Namen *ilm el aktaf* bekannt, bei Persern und Afghanen heisst sie *ilm i shaneh.*[3]

Mit dem Vordringen des Islams hat sich dann diese Form der Wahrsagung weiter verbreitet. Die erobernden Araber trugen sie am Nordrande des Mittelmeers bis nach *Marokko,* wo sie noch heute Verwendung findet. Als Dr. OSKAR LENZ[4] von Südmarokko aus seine grosse Reise durch die Sahara nach Timbuktu antrat, verliess ihn einer seiner besten Diener, weil er aus dem Schulterblatte eines Schafes herausgelesen hatte, dass dem Reisenden ein Unglück begegnen würde.

Es erübrigt nun noch die Scapulimantik bei den Völkern Europas zu betrachten. Dass sie verhältnismässig spät von Innerasien nach dem Westen gelangt sei, erkennen wir aus ihrem Fehlen bei den Hebräern und den Völkern des klassischen Altertums. Zwar spielt die Schulter bei den Hebräern eine Rolle, aber ihr Knochen fand nicht Verwendung zum Wahrsagen. Moses „webt," das heisst dedicirt, die rechte Schulter zum Mahle vor dem Herrn, Aaron soll die „Hebeschulter" an reiner Stätte essen, und die rechte Schulter des Opfertiers gehört dem Priester,[1] aber zum Wahrsagen dient sie nicht und ebensowenig bei Hellenen, Etruskern und Römern.

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[1] Travels in Arabia (1838), Vol. I, p. 344.

[2] Bei HAXTHAUSEN, Transkaukasia, Band I, S. 35.

[3] RICHARD F. BURTON, Sindh (London, 1851), p. 189.

[4] Timbuktu (Leipzig, 1889), Band I, S. 329.

Die Schulter des Pelops wird von Demeter gegessen, und er erhielt dafür eine künstliche aus Elfenbein. Der vertriebene Ödipus bekam von den Söhnen die Schulter von jedem Opfertiere, einst aber statt deren die Hüfte, was er als Beleidigung auffasste und deshalb die Söhne verfluchte.

Bei den Römern war die Schulter Sitz der Tragkraft, wie PLINIUS, Panegyr. Traiani erweist: Cum abunde expertus esset pater, quam bene humeris tuis sederet imperium. Wenn also auch die Schulter genügend Beachtung fand, so ist doch von einer Weissagung aus ihren Knochen bei Hebräern, Etruskern, Griechen, und Römern nichts bekannt. Diese Art der Zukunftszauberei muss daher erst spät nach Europa vorgedrungen sein, und ich greife wohl nicht fehl, wenn ich annehme, dass sie erst im Gefolge der grossen Völkerbewegungen, die als Einleitung der späteren Völkerwanderung zu betrachten sind, nach Europa gelangte. Sie beginnen schon im 8. Jahrhundert v. Chr. mit den Einfällen der Skythen, die von medischen Sauromaten wieder verdrängt wurden. Seit dem ersten Jahrhundert n. Chr. erscheinen die Alanen, dann folgen die Hunnen, Avaren, Kumanen, Türken, Mongolen, die das bei ihnen altheimische Orakel mitbrachten. Nichts Auffallendes hat der Übergang asiatischer, besonders mongolischer Vorstellungen und Bräuche auf Osteuropäer, was schon vor der Eroberung Sibiriens der Fall war, wie noch zu Herbersteins Zeit, im 16. Jahrhundert, die Tracht der Russen mit jener der Tataren viel Übereinstimmendes hatte, und Erman in seiner Reise uns erzählt, wie die Russen in Sibirien von den Eingeborenen Wahrsagebräuche angenommen hatten.

Bei den *Byzantinern* finden wir das Schulterblattorakel zuerst im elften Jahrhundert belegt. In der kaiserlichen Bibliothek in Wien befindet sich ein Manuskript περὶ ὠμοπλατοσκοπίας von MICHAEL PSELLOS herrührend, das von dem Griechen POLITIS herausgegeben wurde, und in dem das Wahrschauen im Schulterblatte ganz deutlich beschrieben ist. „Die Vorbedeutung des Lebens oder des Todes," sagt PSELLOS, „führen die Byzantiner auf die Zeichen des Schulterblatts des Lammes. Wenn die Schulterknochen auf beiden Seiten rein und dünn sind, so ist dies ein Zeichen des Lebens; wenn im Gegenteil die Linien verworren sind, so ist dies eine Vorbedeutung des Todes. Zeigt sich bei einem bevorstehenden Kriege auf der rechten Seite des Schulterblatts eine kleine rötliche Wolke oder sind die Linien länglich und dunkel: so wisse, dass der Krieg lange dauern wird; wenn du im Gegenteil beide Seiten natürlich weiss findest, so deutet dies auf einen baldigen Frieden. Im allgemeinen sind bei allen Fragen die rötlichen und dunklen Striche und die verworrenen Linien ein schlechtes Zeichen, die entgegengesetzten aber ein gutes."[1] Ist auch diese 900 Jahre alte Schilderung in den Einzelheiten nicht überall klar, erfahren wir auch nicht, ob der Schulterknochen vorher dem Feuer ausgesetzt wurde, um die nötigen Sprünge zu erhalten, so ist doch über die Gleichartigkeit des Orakels mit dem noch jetzt in Griechenland bestehenden kein Zweifel möglich. Es spielte eine Rolle in dem Freiheitskampfe der Griechen gegen die Türken, wie dies wiederholt Joh. Philemon in seiner „Geschichte der griechischen Hetärie" bezeugt. Die griechischen Armatolen pflegten vor jedem Überfall der türkischen Truppen das Schulterblatt des genossenen Lammes ihrem Anführer zu übergeben, der es untersuchte und daraus das Ergebnis des bevorstehenden Kampfes herausdeutete. „Oft hat," sagt Joh. Philemon, „dieser Aberglaube genügt, wo alle Hoffnung verloren war, aber er war auch oft schädlich und unheilbringend. Der gute oder schlechte Ausgang einer Schlacht hing gar oft von der guten oder schlechten Deutung der Hammelschulter ab, besonders wenn der Deuter ein allgemein verehrter alter Mann war, dessen Worte als Orakelsprüche angesehen wurden. Der Zufall, mit dem gefährlichen Aberglauben der Unwissenheit verbunden, verlieh selbst den Knochen eines Tieres einen heiligen Einfluss."

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[1] 3 Mos. 9, 21; 10, 14; 7, 32.

Auf dem Lande besteht die Sitte, den Schulterknochen zu prüfen, noch heute in Griechenland. Wenn der Hausherr das Osterlamm oder das am Georgsfeste geschlachtete zerlegt, gebührt ihm die Schulter, deren Knochen er sorgfältig prüft, um daraus Schlüsse auf die Zukunft zu ziehen,[1] doch ist diese Sitte stark im Schwinden begriffen, wird aber bei den Räuberbanden in Macedonien noch geübt, wenn sie Auskunft darüber zu erhalten wünschen, ob sie Lösegeld für ihre Gefangenen erhalten werden oder nicht; im letzteren Falle ermorden sie dann die Gefangenen, deren Leben geradezu von den Rissen des Schulterblatts abhängt. Ist ein Loch, das Grab bedeutet, im dünnen Teile des Knochens vorhanden, so erfolgt kein Lösegeld, und der Gefangene wird ermordet. Läuft die Linie (Riss, Sprung) nach der Länge des Knochens, so erhalten die Räuber Lösegeld. Ein Querriss deutet darauf, dass sie verfolgt und gefangen genommen werden.[2]

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[1] Politis bei J. Pervanoglu, Culturbilder aus Griechenland (Leipzig, 1880), S. 51.

Auch für die *Aromunen* (Rumänen) der Balkanhalbinsel ist das Schulterblattorakel aus der Gegenwart belegt.[3] Ausser Griechen und Rumänen üben es dort noch heute die *Südslaven*, worüber uns der ausführliche Bericht von LUKA GRGJIĆ-BJELOKOSIĆ belehrt.[4] Leider ist die Mitteilung ohne Abbildung, und die Beschreibung in osteologischer Beziehung so unklar, dass es nicht möglich ist, über den Verlauf der geschilderten Risse sich ein richtiges Bild zu machen. Und doch wäre dies des Vergleichs wegen mit den Deutungen und Spalten, wie sie bei den Kirgisen und Kalmüken vorkommen, von Wichtigkeit, gäbe vielleicht Auskunft über den Ursprung des Orakels, das ja durch die Türken nach Bosnien gelangt sein mag, wenn es nicht mit der schon den Byzantinern im 11. Jahrhundert bekannten Scapulimantik im Zusammenhange steht. Verstehe ich die undeutliche Schilderung richtig, dann findet sich da, wo Kalmüken und Kirgisen einen Riss als „Schwanzriemen" bezeichnen, bei den Hercegovcen ein „Pferdehalfter," auch sonst finden Übereinstimmungen statt, da Überfluss oder Mangel, Grab und Tod, Geburt von Knaben oder Mädchen, Vermögen und Schulden, Handel und Fruchtbarkeit, Unwetter und Feuersbrunst, Krieg und Frieden aus dem Schulterblatte abgelesen werden. Dass das vom Fleische befreite Schulterblatt dem Feuer ausgesetzt werde, ist in dem Berichte nicht gesagt. Am tauglichsten ist das Schulterblatt eines zweijährigen schwarzen Schafes, das zum Weihnachtsbraten bestimmt war.

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[1] PERVANOGLU, l. c., S. 49, 51.

[2] Folk-Lore Journal (1884), Vol. II, p. 369.

[3] G. WEIGAND, Die Olympo-Walachen, S. 16.

[4] Wissenschaftliche Mitteilungen aus Bosnien und der Hercegovina, Band IV, S. 462–464.

Ausführliche Mitteilungen über das Schulterblattorakel bei Bosniern und Serben bringt auch F. S. KRAUSS,[1] doch ist auch hier, ohne Beigabe einer Zeichnung, die Art der Deutung im einzelnen nicht zu verstehen, da die Bezeichnungen der Teile des Schulterblatts ganz unklar bleiben. In Bosnien übernimmt ein erfahrener älterer Mann zu Weihnachten die Prophezeiung; er wird Polažajnik (Besucher) genannt. KRAUSS sagt (S. 169), dass man in Serbien aus dem „gebratenen" Schulterblatte eines Schafbocks wahrsage, was vielleicht so zu verstehen ist, dass der Knochen, wie bei den Mongolen, vor dem Prophezeien dem Feuer ausgesetzt wird. Man benützt gewöhnlich das rechte Schulterblatt eines Bocks, das man sogleich, nachdem das Tier zerlegt ist, dem Wahrsager übergibt (S. 170), das also dann nicht geröstet sein kann. Von jemandem, der lange Zeit nicht zum Besuche erschienen ist, sagt der Südslave: *nema ga ni u pleću,* „Von ihm ist nicht einmal im Schluterblatte eine Spur zu sehen," was auf die grosse Volkstümlichkeit dieses Orakels hinweist.

Im italienischen Sprachgebiete ist auf *Korsika* das Wahrsagen aus dem Schulterblatte namentlich im Hirtenland Niolo bekannt. Hier muss es das linke Blatt von einer Ziege oder einem Schafe sein, weil nach einem dort geltenden Spruche *la destra spalla sfalla,* „das rechte trügerisch ist." Von vielen berühmten Korsen wird erzählt, dass Wahrsager ihnen aus der Scapula genau ihren Tod vorausgesagt hätten, und auch Napoleons Schicksal wurde aus einer *spalla* prophezeit. Ein alter im Lesen der Schulterblätter erfahrener Hirt in Ghidazzo besah eines Tages, da Napoleon noch ein Knabe war, die Scapula und fand darauf deutlich abgebildet einen Baum, der mit vielen Zweigen hoch in den Himmel griff, aber nur kleine und wenige

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[1] Volksglaube und religiöser Brauch der Südslaven (1890), S. 166.

Wurzeln hatte. Daraus erkannte der Hirt, dass ein Korse Herr der Welt werden würde, aber nur für kurze Zeit. Diese Schulterblattprophezeiung ist in Korsika sehr bekannt.[1]

Ob in *Deutschland* das Schulterblattorakel heute noch vorkommt, kann ich aus der mir bekannt gewordenen volkskundlichen Litteratur oder der Erfahrung nicht belegen. Es ist aber vorhanden gewesen und wohl durch verwandte Formen der Wahrsagerei verdrängt worden. In einem aus dem Jahre 1411 stammenden Gedichte, VINTLER's „Blume der Tugend," in dem von allerlei Aberglauben und Zauberei die Rede ist, heisst es von abergläubischen Leuten:

„Die sechend an dem schulterpain,
Das menschen sol beschechen." [2]

Desgleichen liegt für *Frankreich* und *Spanien* in einer altfranzösischen Romanze, „Eustache le Moine," die F. MICHEL 1854 wieder herausgegeben hat, ein Beleg vor. Der Held hat in Toledo die Zauberei erlernt:

„Et par l'espaule au mouton
Faisoit pertes rendre à fuison." [3]

Dass die Scapulimantik bei den *Litauern* bekannt war, ersieht man aus einer Stelle der Livländischen Chronik, wo es heisst:[4]

„An ein schulderbein er sach,
des quam sin herze in ungemach.
er sprach: die Littouwen lîden nôt,
min bruoder ist geslagen tôt,
ein her in mînem hove lac,
sît gester biz an disen tac.
das bein hat manigem sît gelogen."

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[1] F. GREGOROVIUS, Corsica, 3. Aufl., Band 1, S. 272. N. TOMMASEO, Canti popolari toscani, illirici, greci (Venezia, 1841), wonach in Das Ausland (1842, S. 627–628) die gleichen Mitteilungen wie bei Gregorovius gemacht werden.

[2] GRIMM, Deutsche Mythologie (1835), p. LIV. Vergl. J. v. ZINGERLE, Sitten, Bräuche und Meinungen des Tiroler Volks (1857), S. 192, wo nach einer Innsbrucker Handschrift eine wenig abweichende Lesart gegeben ist.

[3] Folk-Lore Record, Vol. 1, p. 176 (The Folk-Lore Society, 1878).

[4] GRIMM, Deutsche Mythologie, Nachtrag, S. 322.

Während ich so für Mitteleuropa nur spärliche Zeugnisse besitze, die über unser Orakel Auskunft geben, tritt es in *Grossbritannien* wieder stark in den Vordergrund. Dort ist es aus dem 16. Jahrhundert bezeugt, wo es zur Prüfung ehelicher Treue einer Frau diente,[1] wie heute noch bei den Tscherkessen. Der englische Ausdruck für diese Wahrsagekunst lautet *reading the speal-bone* (*speal* vom französischen *espaule,* „Schulter"). Ein Zeitgenosse Shakespeares, Michael Drayton, hat in seinem „Polyolbion" betitelten Werke zahlreiche volkstümliche Gebräuche seiner Zeit aufgezeichnet und erwähnt dabei auch das Schulterblattorakel, wie es damals in einer flandrischen Colonie im Pembrockshire zur Ausführung gelangte: —

„A divination strange the Dutch-made English have
Appropriate to that place (as though some power it gave),
By th' shoulder of a ram from off the right side par'd
Which usually they boil, the spade-bone being bar'd;
Which when the wizard takes and gazing thereupon
Things long to come fore-shows, as things done long agone,
Scapes secretly at home, as those abroad and far,
Murthers, adulterous stealths, as the events of war.
The reigns and death of Kings they take on them to know,
Which only to their skill the shoulder-blade doth show."[2]

Mehr kann man nicht verlangen, und das Schulterblatt leistete damals für Pembrockshire so ziemlich alles, was man von einem Wahrsageapparate wünschen konnte. Noch im Jahre 1850 und wahrscheinlich noch heute wird in Denbigshire an die Wahrsagekraft des Schulterblatts geglaubt, wie ein Fall bezeugt, in welchem das Geschlecht eines erwarteten Kindes im voraus bestimmt werden sollte, wobei das Verfahren folgendes war. Eine alte Frau entfernte von dem Vorderblatte eines Hammels das Fleisch, röstete den Knochen über Feuer und bohrte mit dem Daumen durch dessen dünnen Teil ein Loch, durch das sie einen Bindfaden zog, an welchem sie das Schulterblatt an der Hintertür des Hauses aufhing mit der Bemerkung, dass, wer (abgesehen von Mitgliedern der Familie) am nächsten Morgen durch diese Tür zuerst einträte, das Geschlecht des erwarteten Kindes bezeichne: sei es ein Mann, so werde es ein Knabe; sei es eine Frau, ein Mädchen. Da zuerst ein Mann eintrat, und kurz darauf ein Knabe geboren wurde, so stand in jener Gegend der Glaube an das Orakel fest.[1]

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[1] Dafür wird angeführt GIRALDUS CAMBRENSIS, Itinerarium (London 1585), Vol. I, Cap. 2, nach HAXTHAUSEN, Transkaukasia, Band II, S. 172; und Folk-Lore Journal (1884), Vol. II, p. 368.

[2] Folk-Lore Journal (1884), Vol. II, p. 368.

Für die *schottischen Hochlande* fehlen die Belege nicht, dass dort unser Brauch noch im Beginne des 19. Jahrhunderts lebendig war. Der gaelische Ausdruck dafür ist *airich,* das Schulterblatt heisst *slinnairachd,* von *slinnig,* „Schulter." In Invernessshire war diese Wahrsagerei besonders am Weihnachts- und Neujahrsabend von sicherem Erfolge, worüber wunderbare Geschichten in Umlauf waren. Um für den Zweck geeignet zu sein, wurde die Scapula von Schaf oder Ziege besonders zubereitet. Das Fleisch durfte nicht mit einem Metallmesser entfernt werden, sondern nur mit den Zähnen oder einem hölzernen Gerät. Nicht durch Risse, die im Feuer entstanden waren, sondern aus Flecken auf dem dünnen Teile des Knochens erkannte man die Zukunft, und nur für das laufende Jahr und für eine besonders das Orakel befragende Person hatte alles Geltung. Man erkannte im Schulterblatte, ob eine Person im laufenden Jahre sterben würde, ob sich Mordtaten oder Kriege ereigneten, wie viel Geld der Besitzer des Schafes, von dem das Schulterblatt stammte, im Vermögen habe, und dergleichen.[2] Wenn hier noch gesagt wird, dass das Fleisch vom Schulterblatte nicht mit einem Messer entfernt werden dürfe, — *iron hinders all the operations,* — so trifft das mit einem sehr weit verbreiteten und uralten, an die Steinzeit gemahnenden Glauben zusammen. Schon Moses wird beim Empfang der zehn Gebote befohlen, beim Bau eines Steinaltars kein Messer zu verwenden, da er ihn sonst entweihe, und beim Bau des Salomonischen Tempels waren die Steine alle vorher zugerichtet, so dass man kein Eisenzeug beim Baue benutzte.[3] Auch bei den Kirgisen ist, wie wir gesehen haben, der Gebrauch des Messers bei der Entfernung des Fleisches von der Scapula untersagt.

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[1] Folk-Lore Journal, Vol. II, p. 369.

[2] The Folk-Lore Record (London, 1878), Vol. I, p. 176.

[3] 2 Mos. 20, 25; 1 Kön. 6, 7.

Wenn wir im Vorstehenden das Wahrsagen aus dem Schulterblatte von Westeuropa durch Asien bis zu dessen äusserster Ostspitze an der Beringstrasse nachgewiesen haben, so ist die Frage nicht unberechtigt, ob es nicht auch diese enge Strasse überschritten habe und nach *Amerika* gelangt sei, eine Frage, die um so berechtigter ist, als wir jetzt, zumal durch die verschiedenen Forscher der Jesup-Expedition, eingehend darüber belehrt worden sind, wie so viele Volksüberlieferungen und selbst Gegenstände der materiellen Kultur den Völkern auf beiden Seiten der Strasse gemeinsam sind. Reicht das Orakel nun auch auf der asiatischen Seite bis zu den Tschuktschen und Korjäken, so ist es auf der amerikanischen doch noch nicht nachgewiesen. So vieles auch gleichartig ist bei den Beringsvölkern der asiatischen Seite und den amerikanischen Eskimo, — das Schulterblattorakel fehlt den letzteren, wenigstens ist es weder bei den Eskimo am Kap Barrow, noch bei den Central-Eskimo erwähnt, von denen wir ausgiebige Berichte durch MURDOCH und BOAS besitzen,[1] ganz zu schweigen von den Eskimo am Smithsunde und in Grönland.

Es scheint danach, dass das Wahrsagen aus dem Schulterblatte von seinem asiatischen Ursprung noch nicht nach Amerika gelangt ist, wahrscheinlich auch deshalb nicht, weil einmal die Viehzucht, mit welcher es verknüpft erscheint, in Amerika nicht vorhanden war, und dann, weil es wohl erst verhältnismässig spät zu seiner östlichsten Verbreitung bei Tschuktschen und Korjäken gelangte und, so zu sagen, noch nicht Zeit hatte, die Beringstrasse zu überschreiten.

Indessen will ich gerne darauf warten, ob ich hier nicht noch eines Besseren belehrt werde, da ich wenigstens die Spur eines ähnlichen Orakels in Amerika gefunden habe; doch ist die Nachricht nicht genau genug, um daraus einen sicheren Schluss ziehen zu können.[2]

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[1] Sixth and Ninth Annual Reports of the Bureau of American Ethnology; Bull. Amer. Mus. Nat. History, Vol. xv.

[2] E. B. TYLOR, Anfänge der Kultur, Deutsche Ausgabe, Band I, S. 123 berichtet nach LE JEUNE, Nouvelle France, Vol. I, p. 90 folgendes: Die nordamerikanischen Indianer werfen einen flachen Knochen des Stachelschweins ins Feuer und schliessen dann aus seiner Farbe, ob die Stachelschweinjagd ergiebig sein wird.

Wenn wir das Mitgeteilte kurz überblicken, so darf wohl die mongolische Bevölkerung Innerasiens aus den angeführten Gründen als Urquell dieser Art von Wahrsagung angesehen werden. Die Scapulimantik erstreckt sich, von diesem Kerne ausgehend, über nicht weniger als 200 Breitengrade von Grossbritannien und Marokko im Westen bis zur Beringstrasse im Osten, während Afrika, den Nordrand ausgeschlossen, und der grössere Teil von Südasien und Südostasien sie nicht kennen lernten.

Nur zur Erforschung der Zukunft, zu keiner anderen Art von Zauberei, dient das Verfahren, und ob Priester oder Laie es ausführt, ist ohne Belang. Schamanisten, Buddhisten, Mohamedaner und Christen bedienen sich seiner. Das Verfahren ist überall ziemlich gleich und weicht nur in untergeordneten Dingen ab. Vorwiegend wird der gebrannte Schulterknochen des Schafes benutzt, seltener der nicht vorher dem Feuer ausgesetzte. Dass die Wahrsagung an bestimmte Zeiten gebunden ist, lässt sich nur im Bereiche der Christen erkennen (Weihnachten bei Schotten und Griechen). Grössere Veränderungen erlitt die Scapulimantik nur da, wo sie mit der Astrologie vermischt wurde. Ihr Einfluss auf die persönlichen und selbst politischen Verhältnisse der Völker, bei denen an ihr Zutreffen geglaubt wird, ist nicht zu unterschätzen, da sie für die Entscheidung, ob Krieg oder Frieden, öfter ausschlaggebend ist. Im Stammgebiete bei den Mongolen Innerasiens blüht noch heute die alte Wahrsagekunst aus dem Schulterblatte, während sie in ihren davon entfernten Ausläufern im Absterben begriffen oder schon erloschen ist.

[The ancient Chinese possessed a highly developed and very elaborate system of divination by cracks in burned tortoise-shells (see JOH. H. PLATH, Die Religion und der Cultus der alten Chinesen, Part I, Abhandlungen der Bayerischen Akademie, München, 1862, pp. 819–827; J. LEGGE, The Chinese Classics, Vol. III, pp. 335 et seq.). All together, a hundred and twenty different figures formed by these cracks were counted, and there were twelve hundred answers or oracles. In 1904, near *Hui chou fu* in Honan Province, an important archæological discovery was made, consisting of several hundred fragments of ancient tortoïse-shells inscribed with characters, the style of which doubtless

fixes their dates back in the time of the Chou dynasty. Among this lot, pieces of scorched bones have also been found, the character of which has not yet been investigated. (Regarding the Chinese literature on the subject, see A. WYLIE, Notes on Chinese Literature, 2d ed., p. 192.) — In Japan, *scapulimantia* seems to go back to a very early age and to the so-called proto-historic period, before Chinese and Corean influences were felt. From the oldest work of Japanese literature, the "Kōjiki," written A.D. 712, we learn that divination by means of the shoulder-blade of a stag was a favorite way of ascertaining the will of the gods (B. H. CHAMBERLAIN, Ko-ji-ki, or Records of Ancient Matters, in Transactions of the Asiatic Society of Japan, Vol. x, Suppl., Yokohama, 1883, p. lix; K. FLORENZ, Japanische Mythologie, Tokyo, 1901, pp. 21, 197). By means of the Chinese annals, which furnish the oldest accounts of Japan, we are enabled to trace this custom back almost to the beginning of our era. In the books of the Later Han dynasty it is said of the Japanese that they divine by scorched bones, and by this means ascertain whether their luck will be good or bad (E. H. PARKER, Early Japanese History, in China Review, Vol. XVIII, 1890, p. 219 b). The "Wei chi," a part of the "San Kuo chi," relating to the period A.D. 220–280, states that the Japanese have a custom, when entering upon a proposed undertaking, of scorching a bone and divining, in order to ascertain the auspiciousness or untowardness of the event; they first declare what they wish to divine, in language similar to that used in the tortoise-shell divination, and discern the augury through the cracks made by the fire (Ibid., p. 223 a). The lamas of Tibet divine by counting on their prayer-beads, by lines which the inquiring person traces on the ground, by burning sheep's bones, or by gazing into a bowl of water (W. W. ROCKHILL, Journal Royal Asiatic Society, 1891, p. 235). As regards the mode of divination by bones, Rockhill here refers to E. QUATREMÈRE, "Histoire des Mongols de la Perse," p. 267. — EDITOR.]

A RECONSTRUCTION OF THE THEORY OF SOCIAL ORGANIZATION.[1]

BY JOHN R. SWANTON.

BY most anthropologists who have hitherto swayed popular scientific opinion it seems to be accepted that human society was early organized on the basis of bands, or clans, in which children belonged to the division of the mother; or, in other words, descent was "maternal." These bands are also commonly supposed to have been ranged into two divisions, called "phratries," which usually determined marriage relations, a man not being allowed to marry a woman of his own phratry. Each of the bands or clans is furthermore supposed to have borne the name of some animal, plant, or other object, towards which it stood in a mystical relation, and which often determined tribal or band ceremonies. It also controlled matrimony, since no persons possessing the same totem could unite, either legally or clandestinely, without becoming social outcasts. Finally it is assumed that social evolution has always been from this condition to a similar organization with male descent.

Now, it is certainly true that such organizations of society have existed and still exist in various parts of the world; but it is a fair question whether they represent a universal primitive condition. Although social phenomena of this character are reported from Africa, South America, and parts of Asia, the theory of primitive society above outlined has been mainly founded on studies of tribes in Australia and North America. Tribes organized according to both plans are known to occur in these two areas; but has it been shown, first, that they are the only varieties of social organization there met with; and, second, that in any given section occupied by one type there are no definite data showing in which direction evolution is proceeding?

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[1] The investigation on which this paper is based was originally suggested, at least indirectly, by Professor Boas, and is therefore particularly appropriate to this occasion. I have made few references to authorities, because the principal ones were brought together in a paper on "The Social Organization of American Tribes," presented at the California meeting of the American Anthropological Association, and published in the American Anthropologist, N. S., Vol. VII, 1905, pp. 663–673, although I am indebted to various persons for oral information.

So far as Australia is concerned, it appears that nearly all the tribes are organized in conformity with the two conventional patterns indicated, one set possessing two exogamic divisions with female descent, the other two or more with male descent, and a number of exogamic totems being ranged under these major divisions. It has been assumed, that since in many respects the Australian aborigines appear to be among the lowest in the social scale, and the most cut off from outside influence, their society has been preserved to us in a fossilized state, and is therefore the most primitive. The argument has its drawbacks, however, in this particular, that the very isolation and uniformity of country and race are bound to keep society itself much more uniform than elsewhere. Such being the case, if all Australian tribes have varied, they have probably varied together, thus obscuring the path of their own evolution. It seems to the writer that this condition renders it necessary to appeal to other parts of the world for positive proof. If we then find that the most uncivilized tribes are organized similarly to the Australians, that the higher possess male descent, and that the other areas are constantly shrinking, a strong probability follows that primitive races were, indeed, in a condition similar to the maternal tribes of Australia. Otherwise Australian organizations may prove to be very special or very highly evolved.

For some reason difficult to explain, but probably because no direct attack has been levelled at his general conclusions, most writers on the sociology of American tribes appear to rest satisfied with the opinions expressed by Lewis H. Morgan, in his work on "Ancient Society." At the same time investigators who have had a much more intimate acquaintance with Indian races than he — such as Clark and Mooney — have expressed doubts regarding them. Let us glance for a moment at the American data on which he rests his case.

After giving a somewhat minute exposition of the social system of the Iroquois, with which he was particularly familiar, Mr. Morgan passes the other tribes of North America in review with what seems to the writer excessive haste, and the following numerical result. The Wyandot, Oto, Missouri, Mandan, Hidatsa, Crow, Creek, Choctaw, Chickasaw, Cherokee, Delaware, Munsee, Mohegan, Kutchakutchin, Tlingit, Haida, Tsimshian, Hopi, Laguna, — i.e., nineteen tribes or groups, — are found to possess organizations of the supposed "primitive" type; the Ponka, Omaha, Iowa, Kansa, Winnebago, Chippewa, Pottawatomie, Miami, Shawnee, Sauk and Fox, Menominee, Kickapoo, Blackfeet, and Abnaki, — a total of fourteen, — possess exogamic divisions with male descent; while an examination of the Dakota, Cree, some of the northern Athapascan, the tribes of Oregon (by HALE), the Eskimo, Salish, Sahaptin, and Kootenay, — eight names, — fails to show any clans whatever. The "primitive" type is thus found in more cases than the paternal type, but in less than half of the whole number of cases cited. Morgan pretends to have shown, it is true, that the Winnebago, Chippewa, Shawnee, and Menominee have changed over from the "primitive" type under white influence, but his arguments are far from convincing. For instance, he thinks that the Winnebago have recently changed to male descent, because Carver, who was aware that descent was reckoned in the female line by some tribes, attempts thus to account for the fact that he found a woman at the head of the Winnebago. Now, any one familiar with the workings of a maternal system is aware that a woman is no more likely to become a chief under it than under any other; and among the Haida, I recall only one doubtful case of a woman who might be said to have been the head of her clan or tribe, or who had any position other than that given her by birth and marriage. The Chippewa are supposed to have had female descent (1) because they belong to the same stock as the Delaware, who have it, and who are *supposed* to be one of the oldest Algonquian tribes, and because several other Algonquian tribes were so organized; (2) because a certain Chippewa sachem declared that his nephew, instead of his son, was his rightful successor; (3) because white missionaries are *supposed* to have opposed it; and (4) because it exists among some Algonquian tribes, a fact which "leads to the conclusion that it was anciently universal" in America. All that we need say of most of these arguments is, that they rest entirely on suppositions, and that suppositions are not sufficient. Argument 2 is the only one that can be considered valid, and this is partially vitiated by the fact that we do not know the circumstances entering into the case in question. As we shall show later, it is quite possible for both systems of descent to be found in the same tribe without any necessity of assuming that one is more ancient than the other. This possibility is of importance in attaching the proper weight to Morgan's argument regarding the ancient method of reckoning descent among the Shawnee. Here he cites the case of a chief of the Wolf gens who desired to have his sister's son, of the Fish gens, succeed him, in preference to his own son, who was of the Rabbit gens. The nephew was consequently given a Wolf name, and succeeded to the position. This proceeding is certainly very interesting; but, unless one has a special theory to support, can it be honestly said that it "tends to show that at no remote period descent among the Shawnee was in the female line"? All that may fairly be deduced from it is, that the reckoning of descent was variable, and change from one totem to another easy. Regarding the Menominee, Morgan's argument appears stronger, since a member of that tribe is quoted as saying to him, "If I should die, my brothers and maternal uncles would rob my wife and children of my property. We now expect that our children will inherit our effects, but there is no certainty of it. The old law gives my property to my nearest kindred who are not my children, but my brothers and sisters, and maternal uncles." There appears to be something behind this statement. At the same time, the writer's familiarity with the cast-iron character of a well-established maternal system leads him to wonder how it can have altered with such smoothness and ease in the northwestern Algonquian area that Morgan can cite only two *bona fide* references to his assumed previous condition. The entire area covered by the Menominee, Chippewa, Sauk and Fox, Kickapoo, Illinois, Miami, Shawnee, Pottawatomie, Ottawa, and I might add Abnaki, is in utter confusion sociologically, and awaits new light. Meanwhile Morgan's hypothesis, that these tribes have recently changed from a strictly maternal stage to a strictly paternal stage, should be accepted with caution. If, however, Morgan is right in this particular contention, better evidence goes to show that he is wrong in classifying several other tribes as maternal. Thus there is no reason to believe that descent was reckoned among the Oto and Missouri in a way different from that among the closely related Iowa; while he is certainly wrong in including the Mandan, Hidatsa, and Crow in his "primitive" category, since the divisions among them which he dignifies as gentes are nothing more than bands. The fact that Morgan's Mandan informant belonged to his mother's gens lacks significance, because it is implied that his father was not Mandan; and as long as he remained with his mother's people, his mother's band contained his only relatives, and was naturally that with which he would affiliate.

A wider study of our Indian tribes than Morgan was able to make does not appear to strengthen his hypothesis. As a result of these studies, we may give the following tentative classification: —

1. Tribes with maternal clans, — the five Iroquois tribes, the Tuscarora, Wyandot, Cherokee, Creek, Choctaw, Chickasaw, Timucua, Natchez, Biloxi, Tutelo, Delaware, Mohegan, Conoy, Nanticoke, tribes of Powhatan's confederacy, tribes of the Caddoan confederacy, Tonkawa, Pueblo, Navaho, Tlingit, Haida, Heiltsuk, Tsimshian, Carrier, western Nahane, Knaiakhotana, and Kutchakutchin.

2. Tribes with paternal gentes, — Omaha, Ponka, Iowa, Oto, Missouri, Winnebago, Kansa, Quapaw, Osage, Yuman tribes, Chippewa, Menominee, Pottawatomie, Ottawa, Sauk and Fox, Kickapoo, Shawnee, Illinois, Miami, Abnaki, Kwakiutl. As already noted, descent among some of the Algonquian tribes enumerated does not seem to be definitely fixed; but, since Morgan admits them to have been of this type in later times, we shall certainly be excused if we follow him.

3. Tribes without true exogamous divisions, — the eastern and most of the northwestern Athapascan; all of the Salish; all of the Shoshonean except the Hopi; the Nootka; the Shahaptian tribes and all the remaining peoples of Washington, Oregon, and northern and central California; the Cree; the Blackfeet; the Arapaho; the Cheyenne; the Crow; the Hidatsa; the Mandan; the Arikara; the Pawnee; the Wichita; the Pima.

A map of America north of Mexico, drawn in conformity with this classification, would thus show one clan area in the east and south, one in the southwest, and one large and two smaller areas in the extreme northwest; a gentile area in the northern and central parts of the Mississippi drainage basin, another in the extreme southwest, and a third in the northwest. It is worth noting, in passing, that gentile areas always occur adjoining clan areas.

We have now demonstrated two things, — (1) that a majority of tribes in the region considered are not organized into clans, and (2) that a very large number of tribes have no clans or exogamous groups of any kind. Mere numerical difference, however, or the fact that one type of organization prevails over a continuous area, while the others occur in disconnected patches, does not indicate which is the most primitive. The small areas may represent regions where old customs persist; or, on the other hand, they may be those where certain sporadic social movements have taken place, local areas of evolution. In order to determine which deduction is correct, we ought to inquire, (1) Are the clan areas now located occupied by tribes more or less "advanced" in other respects? (2) Is there anything to show which way tribal organizations in these areas are tending to develop, — towards the formation of clans, or towards the loss of them?

The first question may be answered by simply referring to the lists already given, and by setting the tribes over against each other.[1] On the one side, we have the Iroquois, who developed the highest type of nationality in this entire region; and the agricultural tribes of the south, such as the Creek, Choctaw, Chickasaw, and Natchez; in the southwest the Pueblo and Navaho; and in the northwest the Haida, Tlingit, and Tsimshian, who were the best carvers, canoe-builders, and fighters on the Pacific coast. On the other side, we have the Eskimo, northern Athapascan and Algonquian, tribes of the northwestern plains, and the "Diggers" of the Grand Plateau and of California. As to the relative moral or intellectual superiority of these races, man for man, I attempt to pass no judgment; but if any collective superiority of one over the other is to be admitted, it undoubtedly belongs to those with maternal clans.

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[1] In this comparison I ignore tribes having descent strictly paternal; a comparison of these with the other two sets seems to give them an intermediate position.

In which direction the evolution of society was proceeding before white contact, it is not always easy to say. As we have seen, Morgan claims that many of the central Algonquian tribes have altered from female reckoning of descent to male reckoning, under white influence. If this is altogether true, however, it is singular that the change should have crept in among them so subtly as almost to displace the former custom before these tribes were at all well known to white people; while the Delaware organization resisted so stoutly, that, in spite of the early date at which the Delaware were encountered, there has never been any question regarding it. Perhaps the confusion that surrounds our knowledge of this set of tribes is due to the fact that descent was not yet established in either line.

But while the course which social evolution was pursuing in eastern North America is thus left in doubt, in the southwest and northwest it is more apparent. In the first place, it is quite certain that the southwestern Pueblo were built up by aggregations of small village communities for social or defensive purposes, the village communities coming to constitute what we call clans; and although it is possible that they were exogamous in their old seats, the probability that such was the case is thereby much weakened. Again, if the clans of the neighboring Navaho tribe are "primitive," there is nothing left for us but to suppose that they are one of the most primitive of the entire Athapascan family, since only one or two remote tribes of that stock share this peculiarity; but to any one familiar with

Navaho culture as compared with that of Athapascan tribes generally, as well as with the evident Pueblo influence among them in other particulars, such a suggestion must appear absurd.

On the North Pacific coast, however, the evidence is quite conclusive, derived from those best qualified to judge as having examined the area in person, and from the relative geographical positions of the various forms of organization. Under the first head we have the statement of Rev. A. G. MORICE, than whom no better authority on the Carrier Indians exists, that the Carrier social organization with its division into castes, along with much of the Carrier mythology and culture, were undoubtedly obtained from the coast. As to the Heiltsuk and Kwakiutl, Professor BOAS is of the opinion that the former have changed to a maternal form of organization, owing to the influence of the northern totemism, and that the Kwakiutl show tendencies in the same direction. Under the second head comes the important fact that, although the Athapascan tribes of the interior belong to one well-marked stock, the social organization of each of the western representatives of it always agrees with the corresponding organization of the neighboring coastal tribe. Thus the western Nahane have two exogamous divisions or clans, like their coastal neighbors the Tlingit; the Carrier four, like their neighbors the Tsimshian; while the Chilcotin, like the Kwakiutl and Coast Salish, possess either gentes or an indeterminate method of reckoning descent. To suppose that these various forms have been evolved among contiguous tribes of one linguistic family, and distributed to several different linguistic families, is quite preposterous.

A review of the tribes of North America north of Mexico thus seems strongly to contradict the prevailing view that that form of society in which a tribe is organized into totemic exogamous clans with female descent is primitive. We have next to inquire how these peculiar types have originated, and what form of social organization preceded. In my opinion, the material already given suggests an answer to these questions. If a Hopi communal house has resulted from the concentration of smaller local groups which became clans, all that is necessary in order to reduce their primitive organization to a level with that of the tribes of the plains and plateaus is to suppose that they were then not strictly exogamous, and that they were not known by totemic names. Possibly future researches among the Pueblo tribes may enable us to say positively whether such was their former social condition or not. Meanwhile we can throw valuable light upon the question by studying the loosely organized tribes themselves to see whether they show tendencies which might point towards an evolution into a social status like that of the Pueblo or Iroquois. This I think is indicated. In tribes like the Salish, Crow, Blackfeet, and Dakota, each band is apt to include blood relations or those who may be suspected of being such; and whatever reason lay behind it, there was certainly a tendency among most of these tribes to discourage marriages within the band, even where the sentiment was not prohibitive. There is no doubt that this sentiment existed with varying degrees of force in different tribes, but a sufficient number of careful records has not been made to show its workings clearly.

It is perhaps too early to attempt anything like a complete explanation of this exogamous tendency, but some suggestions may be made. When I was engaged in investigating the social organization of the Tlingit, one of my informants volunteered the information that his people, who were Ravens, married into the Wolf phratry "to show respect" to them; and he added that this was why they always obtained their assistance in conducting a funeral, and invited them to a feast. Although a clan and phratry system has been established too long among these people for any memory of the original sentiments which brought it about to survive, it seems to me that this remark may, after all, contain a clew to the true explanation. If we suppose a number of bands of similar customs and related speech to occupy contiguous areas, a certain amount of contact is bound to take place, and a sort of intertribal etiquette to arise. Now, leaving aside the fact that according to the natural order of things some intermarriages are bound to take place between bands, there are certain considerations of personal interest which would prompt the members of any band to encourage marriages outside. On the one hand, the members of each band of the type of the Crow and Blackfeet are largely blood relations, camp together, and occupy the same hunting-grounds. By marrying within the band, therefore, a man obtains few advantages that he does not already enjoy. On the other hand, he is surrounded by alien bands, each united in pursuit of its own interests, which are different and may be adverse or actively hostile to the interests of his own group. Now, what easier way exists of obtaining the good-will of these people, averting friction, and securing their co-operation against third parties, than by marriage? Although the feeling which many tribes had when they cemented peace after a war by marrying a man on one side to a woman on the other was of the same kind, it is not necessary that exogamy should have grown up as a result of overt hostile acts. Regardless of any state of affairs approaching war, it is quite natural for people to wish to stand well with their neighbors, or at least with some of their neighbors, by giving them tokens of regard; and what token could be greater than an offer of marriage, a proposal to mingle the blood of the two peoples? Such a custom of exchanging courtesies having once arisen, it might in time have been thought the correct thing to do, and marriage within the band have been first regarded as a mark of low breeding, and afterwards prohibited. Where social rank and wealth play an important part, as on the North Pacific coast, another consideration is the necessity those of the highest classes conceive themselves under of marrying outside in order to wed with equals. This factor was certainly operative in some Haida towns, where, for instance, the chief in one town might be the son of a chief in another, and the grandson of the chief in a third. Feelings of the same kind have governed marriages in the Oriental and European worlds. I do not wish it to be thought that these processes have gone on in a self-conscious or arbitrary manner on the part of the people themselves, or that they have been the only factors at work, but I set them forth as suggestions.

In attempting to account for the existence of exogamous divisions, it will be noticed that I have said nothing about totems. This is because I believe the two questions should be taken up separately, — the former in connection with social and consanguineal tendencies; the latter in connection with religion in its various phases, such as the personal manitou and the personal medicine. If the tribes found organized into clans and gentes have evolved from a condition similar to that of the plateau tribes and those of Washington, Oregon, and California, it is a fair inference that the names of the bands which ultimately developed into clans and gentes were similar to those of bands in the corresponding tribes. Those names are first and foremost local names; but we also find appellations which may be called "nicknames" referring to some supposed peculiarity of the people, or to some real or supposed event in their past history. Some, again, are known by the name of the chief or of some supposed ancestor; while on the Pacific coast we often find grandiloquent titles, indicating the power or social standing of the people. These names, therefore, are not totemic, and only rarely is one of them of such a character that it could be readily metamorphosed into a totemic name. Such being the case, we should look for the introduction of a totemic name alongside of the original appellation which it must be supposed gradually to replace. A tendency of this kind might be detected at either end of the process, totemic names, on the one hand, intruding themselves into bands not yet exogamic, and displacing the old names; and, on the other, maternal or paternal clans which have local or other names side by side with totems.

As yet not enough tribes have been intimately studied to enable us to point to a great mass of evidence, but some that are fairly well known contain phenomena very much to the point. Thus, according to BOAS, the Nootka tribes of the west coast of Vancouver Island are divided into a number of "septs," corresponding to the bands we have been speaking of, which are not exogamous, but each of which, in addition to the local name it bears, possesses a characteristic "crest" resembling a totem. The Tlingit, Haida, and Tsimshian possess, as we have seen, a maternal organization with clans and phratries. The clans, however, instead of being known by totem names, as we should expect, nearly all bear local appellations, usually indicative of the place where the clan is supposed to have originated. At the same time each clan has the right to use a number of badges or "crests," which are nearly all figures of animals. Among the Tsimshian and Haida the development has been such that nearly all clans of any one phratry may wear all of the same set of crests. Among the Tlingit, however, nearly every clan is characterized by some one crest, the possession of which it guards jealously; and these crests are so characteristic of the clans in question, that white people, and sometimes the Indians themselves, popularly speak of the clans as "Frogs," "Porpoises," "Grisly Bears," etc. This certainly suggests a nascent totemic nomenclature. In much the same way the three exogamic divisions or subtribes of the Delaware bore geographical names, — Munsee ("People of the Stony Country"), Unalachtigo ("People who live near the Ocean"), and Unami ("People down the River"), — but were each characterized by a distinct totem (Wolf, Turkey, and Turtle), which in history often replaces the true designation. Much the same seems to have been true of the Mohegan. Again we learn from Matthews that the names of the Navaho clans were principally local appellations; while the Natchez and an Athapascan tribe, the Kutchakutchin, consisted of three castes, the names of which were not totemic, except possibly in the case of the highest caste among the former.

It is admitted that this treatise is based on records of a somewhat fragmentary character, especially those relating to the eastern part of the continent; but the writer hopes it may serve as a stimulus to have them made more complete. He does not wish to be understood as an advocate of "paternal descent" as opposed to "maternal descent," but intends this as a protest against the assumption that a division of society into sharply marked totemic bodies with descent in either direction was necessarily or even probably its primitive status. According to the common assumption regarding what properly constitutes a paternal system, modern society is no more such than that of the Iroquois; for, if it were, it would be impossible for a man to inherit property from his mother. As to the bearing of this proposed reconstruction of the theory of social development on social evolution in Australia and elsewhere, all that can be said is that each region must be worked out by itself so far as practicable; but, if it should be found impossible in any region to show strong reasons why one theory should be accepted rather than another, that ought to have most weight which accounts for social phenomena in some other part of the world. Students of aboriginal American society have the fortunate advantage of dealing with a region which possesses a varied environment and a great many different social systems, thus enabling them to study the reciprocal action of one upon the other, the shrinkage or expansion of this or that system, and the direction in which each is tending.

DECORATIVE ART OF THE ABORIGINES OF NORTHERN AMERICA.

BY W. H. HOLMES.

RECENT researches relating to the American aborigines have extended in a notable measure to their æsthetic activities, and somewhat detailed studies have been made of the decorative art of a few of the tribes; but the phenomena are exceedingly varied, intricate, and elusive, and much more remains to be done before anything like final and comprehensive results are reached. The present brief sketch is offered with the hope of awakening renewed interest in a subject to which Dr. Boas and his immediate associates have made very important contributions.

In treating of the decorative art of the tribes of northern America, it is not essential that theories of the evolution of ornament should be considered; but it may be briefly stated at the outset that the earliest manifestations of the phenomena of embellishment were probably of instinctive kinds, in which design, as we understand it, had no part. These manifestations consisted rather in the assembling of attractive objects for the pleasure they gave, the attachment of such objects to the person, or the addition of colors to the skin; the motives being to please the primitive fancy, to attract the attention of others, or to simulate animals by imitating their markings. These forms of æsthetic activity would be supplemented in time by the application of embellishments to the dress, when that came into use, and to possessions of all kinds having close relations with the person, or which were otherwise intimately associated with the life and thought of the people. Among the tribes, the person was subject to varied decorative treatment. The skin was tattooed, colors were applied in various ways, and ornamental objects were attached in every possible manner. Feathers and other articles were added to the hair; pins, plugs, and pendants to the ears; labrets to the lips; and encircling bands to the waist, arms, and legs. The costume was elaborated for decorative effect, and the head-dress especially became a marvel of gaudy display, well illustrated in the so-called "war-bonnet" of the Plains tribes, and in the still more highly developed head-dresses shown in the paintings and sculptures of the middle Americans. But it is the embellishment of things made and used that calls for particular attention in this place; and in this field the American aborigines, and more especially the semi-civilized peoples of middle America, were hardly excelled by any other known people of corresponding culture-grade. Nothing with which they had to deal was left without some kind of decorative treatment, and their appreciation of the æsthetic values of form and line compares favorably with that of the eastern Asiatics.

The native ornament may first be considered with respect to the several methods of execution or utilization of the elements.

1. The sculptor's art was employed in shaping and decorating objects of stone, wood, bone, horn, and shell, and in some sections this branch is still practised with exceptional skill. Among the Northwest Coast tribes, totem-poles, house-posts, mortuary columns, masks, batons, pipes, and various implements and utensils, represent the forms of beasts, men, and monsters, in relief and in the round. Although these motives usually have primarily a symbolic or other special significance and rarely take wholly conventional forms, they are employed with remarkable skill and appreciation of their decorative possibilities. The carvings in stone, bone, and ivory, of the Eskimo, are particularly noteworthy, and taste is exercised in the shaping of objects of every class. The motives employed are apparently not so generally symbolic as among the Indian tribes, and life-forms are executed with the simply artistic idea more definitely in view. The excellence of this far-northern work is no doubt in part due to the introduction of implements of steel and to the influence of the art of the whites. Among the tribes of middle North America, sculptural embellishment of minor works was common; and the mound-building tribes, for example, showed decided cleverness, especially in the decora-

tion of their tobacco-pipes, carving the forms of birds and beasts, and even men, with excellent taste. Sculpture and sculptural embellishment deal largely with symbolic and ceremonial subjects, and are almost exclusively the work of the men.

2. Plastic ornament, the work of the modeller, was confined to pottery-making tribes, such as the mound-builders and the Pueblo. In pottery, as in sculpture, various beasts, as well as men and fanciful beings, were rendered in the round and in all degrees of relief in connection with utensils, implements, and other objects; and their utilization was probably due largely to the association of religious notions with the creatures represented. All were introduced under the supervision of taste, and hence are properly classed as embellishments. Formal geometric decorations were rarely executed by plastic methods, except the simple incised varieties better classed with engraving, and the impressed or stamped varieties, which bear somewhat the same relation to the plastic art proper that engraving bears to sculpture. The potter's art, relating primarily to household affairs, was practised almost exclusively by the women. Ornamental designs worked out in the native metals, excepting where the methods of the whites have been introduced, are essentially plastic in character and execution. North of Mexico the work of the early days was confined very largely to repoussé figures executed in sheet-metal. The working of metal, so far as known, is a man's art.

3. Engraved ornament is executed with pointed tools on surfaces of various kinds, and has characteristics in common with both sculpture and painting. In certain branches of art it deals principally with geometric figures, but in others life motives are employed with considerable freedom, the representations running through the entire scale of convention. The work of the Eskimo executed on bone and ivory illustrates the more decidedly pictorial phases of this branch, although there are in their art apparent traces of an earlier geometric stage of engraved design. The work of the Northwest Coast tribes, executed on wood, bone, stone, and metal, embodies animal forms almost exclusively, and is always highly conventional, though never fully geometric in style. The work of the mound-builders,

while employing life-forms to some extent, is largely geometric. The Pueblo relied on the brush rather than on the graver for their ornament. Pictographic inscriptions executed in incised lines on rock surfaces, birch-bark, etc., are not properly classed as ornament. Engraved decoration has closely associated with it, in the potter's art, a wide range of imprinted and stamped figures, which are usually quite formal, as in the ancient pottery of the Southern and Eastern States and in the coil-ware of the ancient Pueblo. Engraved design employed in heraldic, totemic, and religious art is usually the work of men; applied to domestic art, as in ceramics, it is the work of women.

4. Embellishments in color are applied to objects or surfaces by means of a great variety of implements and devices, and in the form of paints, dry pigments, stains, and dyes, or are pricked into the skin. They take a prominent place in the art of the Northern aborigines. Color-ornament, in its simplest form, consists in the application of plain colors to the person and to the surface of objects, but more commonly it takes the form of pictorial and conventional designs of wide range; and not infrequently sculptured and modelled life-forms, as masks, totem-poles, earthen vases, etc., are colored in imitation of nature, although generally in formal fashion. By far the most important branch of color-decoration embraces conventional delineations of life-forms on manufactured articles and constructions. These decorations, usually symbolic, are characteristically displayed on articles of skin among the hunter tribes, as the Sioux; on the pottery of the more sedentary peoples, as the Pueblo; and on houses, utensils, and ceremonial objects among the Northwest Coast tribes. Although the freehand methods employed in the painter's art are favorable to flowing lines and the graphic reproduction of life-forms, the color-ornament of some of the tribes is almost exclusively geometric, good illustrations appearing in the pottery of the ancient Pueblo and in the decoration of articles of skin by some of the Plains tribes. It is probable that the geometric character in the first of these instances is in a measure due to copying from textile designs, and, in the second, to the use of rigid coloring-implements instead of brushes. The mound-builders, skilful

with the graver's point, seem to have had slight mastery of the brush, although some good examples of their work in this branch have been obtained from the ancient key settlements of Florida. In painting, as in engraving, symbolic designs seem to originate largely with men, and non-symbolic with women, although the distinctions between the work of the sexes probably vary with the social organization and state of culture.

A peculiar method of color-decoration practised by some of the tribes consisted in the cutting or scraping away of portions of the surface-coloring of an object, developing the design in the contrasting color beneath.

It has often been assumed that native taste in the use of colors is instinctive, and that harmonious results are a matter of course; but there is apparently little evidence on this point, and it is probable that the pleasing combinations observed were in large measure due to the fact that the colors available to the tribes were generally quiet in tone rather than brilliant. Colors were often symbolic, being associated with particular concepts; as green with summer, white with winter, blue with death, yellow with the east, and red with the west.

5. Textile ornament, elaborated in the constructive features or units of the art and in colors associated with these, is disdisplayed to good advantage in the weaving of the ancient and modern Pueblo and the Navaho of to-day, and also among some of the tribes of the Northwest, the Shoshone, Sahaptin, and Chilkat, for example. It is usually highly geometric in style, as a result of the peculiar technique. In this art, even life-forms take on characteristics of the construction or combination of parts, and geometric characters necessarily prevail. The same is true in general of the decorations in the allied arts of basketry, feather-work, bead-work, quill-work, netting, and embroidery. The last-named, although assuming some of the characteristics of the textile foundation on which it is superposed, frequently expresses its designs in flowing graphic forms; and the same is true in a lesser degree in the gobelin tapestry style of weaving practised by the Northwest Coast tribes. As already stated, the decorative motives of the last-mentioned tribes, with the exception of the Nootka and other of the more

southern tribes, are in the main representative of life-forms, but their basketry decoration is almost exclusively geometric. Feather-work had a prominent place in native art, and is still common in the west, the feather-decked baskets of some of the Pacific coast tribes being marvels of tasteful and brilliant ornament. The basketry designs of the Western tribes furnish striking illustrations of the native genius for decoration. So far as known, the mound-building tribes had made no considerable progress in this branch. Textile art of all forms is largely the work of women.

6. Inlaying was employed by the more advanced tribes in the decoration of objects of wood, stone, and bone; but the decorations were usually of a very simple nature, and are of no particular importance in the discussion of the native ornament of the north. The ancient Mexicans, however, executed many superb works by this method.

Associated ornaments are appended or otherwise attached to articles of dress, accoutrements, utensils, etc., and consist of tassels, fringes, beads, feathers, buttons, bells, and the like. They are not usually employed, however, in the elaboration of designs, though effective as ornaments.

The embellishments introduced into the native arts by the various methods described above include or represent several classes of motives, which, although not always readily distinguished one from another, may be grouped in a general way as follows: (1) the technic, having its immediate origin in technical features of the arts themselves, and primarily non-ideographic; (2) the simply æsthetic, introduced from various sources solely for the purpose of adornment, and also primarily non-ideographic; (3) the simply ideographic, portraying pictorially some scene, object, or incident, or expressing in more or less formal manner some ordinary or non-sacred idea, as a name, a number, purpose, ownership, title, rank, achievement, a personal or tribal device, etc.; (4) the sacred, expressive of some religious concept, very generally delineative and present because the concept has a significant relationship with the person or the object decorated. Employed in the various arts, these diversified elements are subject to many mutations of *form* and *meaning*. Applied to objects of art or to the person, the *forms* of all classes of motives, significant and non-significant, are, to a greater or less degree, under the supervision of taste, and undergo modifications to satisfy the æsthetic sense. The simplest denotive signs, for example, are not cut on an implement or utensil without attention to spacing, uniformity of outline, and neatness of finish, while realistic representations are adapted to or brought into harmony with the varying conditions under which they are employed. Motives of all classes take on different forms, or receive distinct treatment, in each of the arts with which they are associated, on account of differences in technique and in the material, shape, and size of the objects to which they are applied. These changes are in the direction of elaboration where this is called for, as in the filling of large spaces, and in the direction of simplicity as influenced by restricted spaces, by haste in execution, or by defective skill; and when the shapes or available spaces demand it, figures are distorted and divided or subdivided without regard to representative consistency. Representations of natural forms introduced into embellishments have, in general, a tendency to become more conventional with repetition, and under the influence of the technique of some of the arts, as in weaving, they pass readily into purely conventional forms. It does not follow, however, that geometric forms necessarily originate in this way. It appears that with many primitive tribes geometric ornament comes into general use at a very early stage of culture-progress, arising in technical features of the arts, in suggestions of fancy, and possibly in other ways. Graphic delineations of life-forms coming into use later combine with or take the place of the conventional decorations, and in so doing are forced into the conventional mould, assuming various degrees of simplification and geometricity. There is also, no doubt, a reciprocal elaboration of the geometric forms to meet the requirements of the new associations. That highly geometric phases of decoration in many cases come into use quite early, is apparent from a glance at the work of the Northern tribes. In the Pueblo region the handsome earthenware of the olden time displays mainly non-realistic geometric phases of embellishment. That of the middle period has a considerable percentage of representative elements, while that of the later time is rich in realistic motives. In the Mississippi Valley and the Atlantic woodlands simple geometric decorations seem to prevail more fully among the more primitive tribes, and the realistic among the more cultured. The change from the formal to the realistic is no doubt due somewhat to the gradual adaptation of decorated articles, at first purely practical in function, to sacred ceremonial uses. The *ideas* associated with ornament are greatly diversified in derivation and character, and subject to profound changes with lapse of time, with advance in culture, and with tribal mutations. The simple technic and æsthetic motives are without particular ideographic associations, although ideas may be attached to or read into them at any stage of their utilization by the imaginative, symbol-loving aborigines. With all tribes devoted to the embellishing arts, there is necessarily a large body of non-ideographic motives which had no significance originally, or which have lost it; but it is a common practice to give to the figures names suggested by their forms, often perhaps for convenience of reference merely; thus, a triangular figure woven in a basket or painted on a leather case may be called a tepee by one people, a mountain by another, and an arrowhead by a third; a simple cross may become the morning star, a mythic animal, or a sign of the four quarters of the world. And these simple designs employed in basketry or bead-work may be so associated as to tell or suggest a story, which may be elaborated indefinitely by the primitive fancy. Again, any simple motive may suggest some symbol or sacred creature; thus, a mere crooked line, previously meaningless, may become a serpent with a whole train of superstitions attached, or it may be made to stand for lightning, the shaft of the gods, or it may be assumed to represent a river about which the fathers have woven a network of myth. Ornament belonging to or derived from religious and other symbolic forms of art, however, was originally fully burdened with associated ideas. The art of a highly religious people is thus especially rich in ideographic elements, and the character of these elements is in a large measure determined by the nature of the particular environment. An agricultural people, for example, occupying an arid region and devoting much attention to the ceremonial bringing of rain, employs a great number of symbols representing clouds, lightning, rain, water, and water-animals, and these are introduced freely into its decorative art. A maritime people, depending on the products of the sea for subsistence, embodies in its mythology the creatures of the sea and the birds and the beasts that prey upon them, and symbols depicting these have a prominent place in its ornamental art. The dominant thought of a people in other than the religious realm finds expression in pictography, and in this form passes into ornament. It is observed that warlike peoples, as the tribes of the Plains, devoted to military achievement, are wont to embody in their art, in association more or less intimate with their religious symbols, the signs and emblems of daring deeds, and with some of the Plains tribes a system of military devices has arisen which constitutes a primitive phase of heraldry. These devices applied to shields, costumes, and dwellings, take their place in the decorative arts of the people.

Considerable diversity in the ideas associated with decoration arises from differences in the spheres of activity of men and women. Delineative elements having their origin in myth and ceremony, in military occupations and the chase, and in pictography generally, are largely the creations of men; the activities of women are connected in a great measure with the domestic establishment, and embellishments employed in the strictly domestic arts consist in large part of designs derived from non-symbolic sources or those which have associated meanings obtained traditionally, or from dreams or the like, invented to please the fancy. However, articles made by women for men, as clothing and certain ceremonial objects, may be embellished with subjects pertaining to masculine activities. So different is the point of view of the two sexes, that it sometimes happens that designs identical in origin and appearance, used by men and women respectively, have wholly distinct interpretations. It would seem that where a marked difference exists between the decorative work of men and women, especially among the more primitive tribes, that of women is less distinctly symbolic than that of men, less graphic in character, and more fully dominated by simple æsthetic requirements.

Generally speaking, it may be said that each tribe employs in its ornament a group of elements or motives, ideographic and non-ideographic, more or less distinctly its own and variously derived, and having characteristics determined largely by the grade and kind of culture and the nature of the immediate environment. The ornament of one tribe acts upon that of a neighboring tribe, and is reacted upon according to the degree of tribal intimacy and culture relationship, and the motives with or without their associated significance pass from one to the other, undergoing changes more or less radical, and giving rise to endless variants. The ornamental art of any tribe is thus, as a rule, highly composite in style and significance, being derived through a plexus of channels, and conditioned at all times by the particular environment.

In view of these facts, it behooves the student of ornament to approach the subjects of origin and significance with due caution. He should remember that an identical or closely analogous conventional form may have diverse origins; and that the exact significance of a given ornament, formal or graphic, must be sought, not in analogous devices of other peoples, and not in explanations previously obtained, but from the particular tribe, clan, society, or individual found using it; and that a search for ultimate meanings is fraught with peculiar difficulties, if not necessarily futile.

A PSYCHO-PHYSICAL ELEMENT IN PRIMITIVE ART.

BY CLARK WISSLER.

THE various problems suggested by the study of primitive art have received a great deal of attention at the hands of students of ethnology. One of the most striking characteristics of such art is the existence of two types rarely found well developed in the same tribe; viz., representative art and ornamentation. The latter stands out in contrast to the former because of its extreme geometric character. There are good reasons for assuming that these two types are related; and it has often been stated that representative art precedes ornamentation in the normal development of the race, and that people first draw well or realistically, but that gradually their drawings degenerate into angular forms, until their art becomes pure ornamentation, and ceases to have objective representative value. The observations leading to the formulation of this theory are various. In the first place, the earliest works of art from the caves of Europe are not only realistic, but meritoriously representative; and, while later periods yield next to nothing in the way of representative art, they offer a superabundance of geometric ornamentation. These, however, are but suggestive data, because of the unbridged chasm between the various known prehistoric cultures of Europe. The strongest support to this theory, however, is found in the art of living peoples. It has been discovered that many people still see in their geometric ornamentation the forms of the animals they may once have represented, and it has been possible in many cases to find extant some of the steps intervening between pure representation and conventionalized ornamentation. This, taken with the fact that almost everywhere primitive people interpret their geometric designs as realistic, usually as the representations of animals, seems to indicate a great probability in favor of the realistic origin of all designs.

Recent studies in North America,[1] however, have suggested the possibility of no necessary connection between the objective form of the design and the object it is supposed to represent, because in many cases the same design is given different interpretations by different peoples; yet this, as evidence, does not dispose of the theory that all designs were once representative of realistic forms, chiefly animal. In many cases they have been borrowed from other tribes, and in others misinterpreted by their makers.

However, there is another aspect of this problem that should be considered. The preceding theory is a theory of development by degeneration, in that art begins with representative forms that gradually die out and leave their distorted geometrical skeletons. Yet the theory is modest, and does not attempt to account for the origin of representative art itself, but assumes a fair development of it to have existed at the point of departure. Thus the theory is not synthetic, like those accounting for other culture phenomena, and is open to objection, in that ornamentation is in itself a development, or at least presents all the objective evidences of it. Geometric designs among some races are few in number and correspondingly simple, while among others they are numerous and correspondingly complex. It has been shown elsewhere that some divisions of the Dakota preserve a well-developed technique in decorative design, in which they actually construct designs from design elements. These elements are simple geometrical figures, and are produced by primitive practical geometric methods; and here we have evidence of an activity in ornamentation that is synthetic, and in some respects opposed to the theory of degeneration.

Now, there seems good ground for an opposing theory of design origin; viz., the view that designs are synthetic in their origin, built up out of simple elements, and that as such they are independent of all representative forms. The strength of this theory lies first in its agreement with our experience in other affairs of the human mind. Things of the world of men go in the accumulative way, and it seems natural to assume that man began with scratches and ended with ornamentation of elaborate and intricate forms. The hacking and scratching occurring in daily activity must have made an impression upon man. A feeling for symmetry of form, and for regularity, which seems quite fundamental in the mind of man, is a sufficient basis for the working-up of these scratches into ornamentation.

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[1] FRANZ BOAS, The Decorative Art of the North American Indians (Popular Science Monthly, October, 1903).

If we examine the psycho-physical basis of this art, we shall find good reason for strengthening our view. Marking, as an activity, must underlie all representative forms, and the fundamental steps in art may have been more nearly allied to ornamentation than to representative art. The consciousness of the visible effect of the art must be, as psychologists have noted, the point of departure. This alone, however, is not sufficient for representative results. A man may know that a scratch or mark will result from certain acts, but where will he get the idea that these scratches can be so ordered as to represent an object? The idea, or association between a mental copy and a graphic one, must be had. The fact that we get it now by imitation aids our view, for in its inception it must have come as a discovery on the part of one individual. Now the child discovers it in the activities of his elders, but then the individual must have discovered it in his own acts. The most natural thing is to assume that he saw a resemblance between certain sequences in scratches or marks and objects.

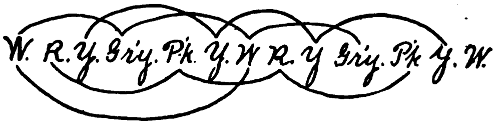
Once man caught the idea of representing a mental copy of objects by marks: representative art was born, and could be handed on by imitation. The fidelity of the representation must have grown from time to time as the artist became more critical.

On the other hand, random movements, or the psycho-physical basis for the hacking and marking, normally follow certain sequences determined chiefly by anatomical conditions and the rhythmic character of nervous discharges, producing in the objective graphic results that are marked by a symmetry and balance of form pleasing because of the instinctive æsthetical feeling. Thus an idea of expressing something other than representative art might be suggested, and this idea might in turn lead to the development of ornamentation irrespective of representative art. However, the purpose of this brief is not to formulate a new theory of art, but to emphasize another element, somewhat opposed to the representative, that must have played a part in the development of art. The psycho-physical basis of motor rhythm, the æsthetic sense, and the ideation tendency to receive the suggestion of the whole from a part, seem sufficient to a theory of the development of art, that is wholly synthetic, and that accounts for the presence of the representative and decorative characteristics as two phases of tribal specialization.

THE SIX-UNIT DESIGN IN ANCIENT PERUVIAN CLOTH.

BY CHARLES W. MEAD.

IN the early part of 1905, Professor Franz Boas asked me if I had ever noticed a color-scheme in ancient Peruvian textiles. There happened to be on my table at the time a piece of such "mummy-cloth" having a row of animal figures around its edges. After examining this, Professor Boas made the following memorandum, which he left with me, saying that it would be interesting to look more fully into the matter when an opportunity should present itself.



The abbreviations on this sketch stand for white, red, yellow, gray, pink, yellow, white, etc.; and these were the colors in which the animal figures were woven, in the order named. The groups of colors enclosed by the curved lines were, as I understood, suggestions as to series of colors to be looked for as a possible key to the number and order of the different colors in the unknown scheme, if any such existed. Not long after this I had occasion to overhaul the large collection of cloth from the ancient Peruvian graves in the American Museum of Natural History, New York, and took this opportunity to act on Professor Boas's suggestion. This led to a very curious and interesting discovery.

While the people who made this cloth appear to have had no definite color-scheme properly so called, no particular number of colors, nor any fixed order for their succession, there is a definite design which seems to have been followed all over the Coast region and in many parts, at least, of the interior, as far eastward as the great Lake of Titicaca. This is what I call the "six-unit design." It appears to have been invariably employed when the figures forming the ornamentation are on the same plane.

Some of the most familiar examples of this work are to be found on the borders of vicuña wool commonly attached to the cotton ponchos, the bands found on the heads of mummies, the various belts or sashes, and in the broad bands of decoration which sometimes cross the finer sort of vicuña ponchos.

The six units of the design are of the same size and pattern, but each varies from the preceding and following one in the color or colors employed. This is the common form; but in some cases we find the design composed of three units of one color, followed by three of another, or four of one and two of another, etc. In every case the six-unit design is retained.

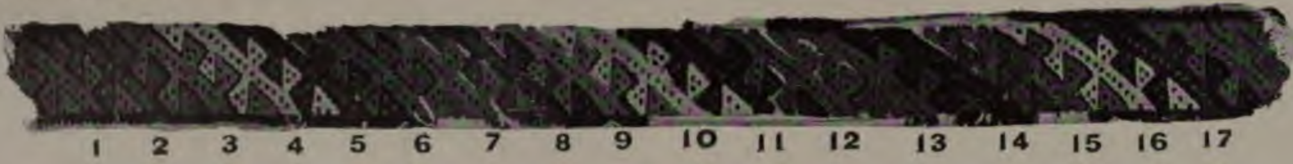
It will be seen by Professor Boas's memorandum above that he had noted down the six colors of the design; and had he examined other pieces at the time, he would have found the number of units the same, but of different colors. In the examination of a large number of pieces, I was unable to find two having the same colors in the same order of succession.

We will now look at the representation of the three pieces of cloth shown on Plate X. The illustration gives no idea of the beautiful colors of the originals, nor is it possible in most cases to determine exactly what the color is: but it answers our purpose, inasmuch as it differentiates the colors one from another, and thus two units of the same color or colors may readily be recognized as such.

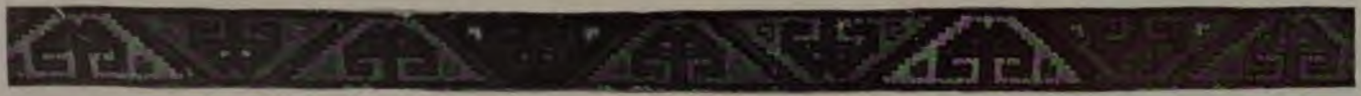
Fig. 1 in this plate shows a border of vicuña wool which was formerly attached to a cotton poncho found in an ancient grave at Pachacamac, Peru. In this the figures or units of the design are in the form of diagonal bars; each bar having triangular projections on its sides, representing conventionalized cat's-heads. A number has been placed at the lower end of each bar to facilitate the description which follows.

As the exact colors cannot be determined from the illustration, I have thought it advisable, in this instance, to give those of the first six bars, comprising the six-unit design. These are —

PLATE X.



1



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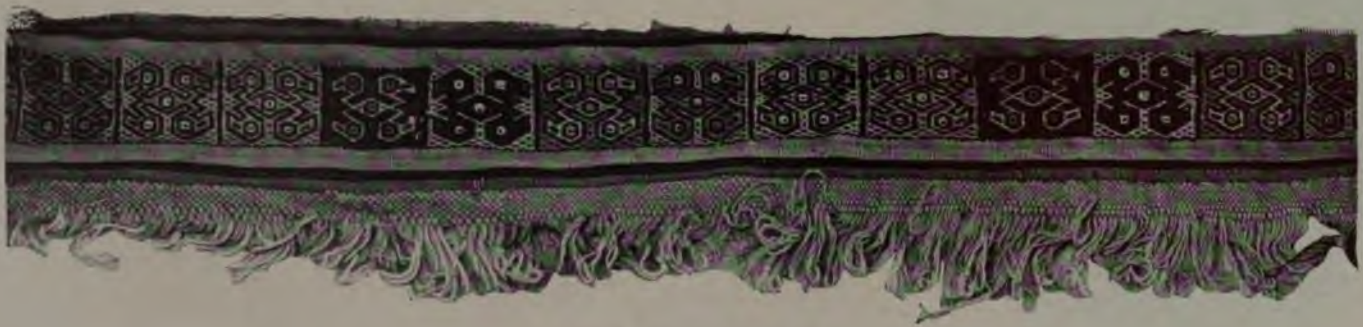


3

ANCIENT PERUVIAN TEXTILES.

DIE BAUMKALEBASSE IM TROPISCHEN AMERIKA,

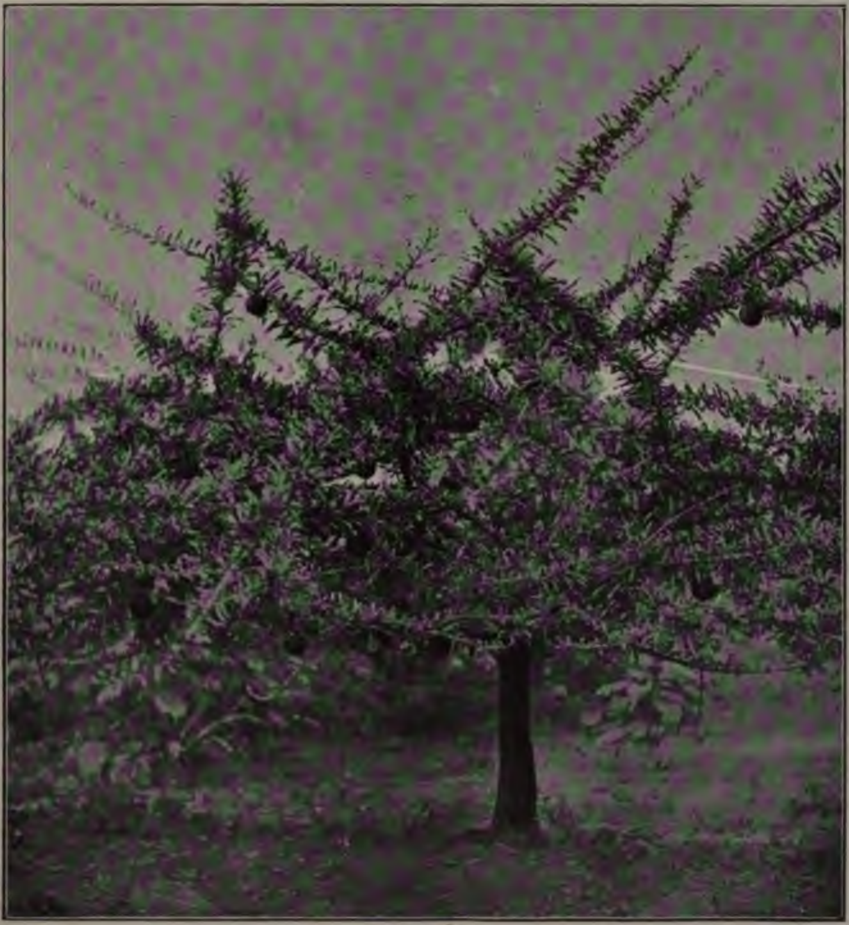
EIN BEITRAG ZUR ETHNOBOTANIK.

VON C. V. HARTMAN.

DER Ackerbau ist in Amerika, wie schon seit langem von Gallatin erwiesen, in der tropischen Zone entstanden und hat sich von dort aus in die gemässigte Zone in nördlicher sowie in südlicher Richtung verbreitet. Als die jetzige Nordgrenze der *Gramineae,* die als Stammformen der *Zea Mays* L. betrachtet werden müssen, wurde erst kürzlich von einer der Expeditionen des American Museum of Natural History in New York etwa der 27. Grad nördlicher Breite nahe beim Tepehuan Pueblo, Baborigame, im Staate Durango, Mexico, bestimmt.

Einheimische Baumkultur blühte in den Tropen und Subtropen, drang aber nie in die gemässigten Zonen ein und ist auch nie dort spontan entstanden. Die in der ganzen ungeheuren Ausdehnung der gemässigten Zonen der beiden Amerika wohnenden Indianer, wiewohl in grossen Gebieten schon seit alters angesiedelt und ackerbautreibend, haben niemals, so weit unsere Quellen erkennen lassen, auch nur eine einzige Art der zahlreichen und höchst wertvollen fruchttragenden Bäume, Sträucher und Rankengewächse, mit welchen die Natur ihre Landschaften ausstattete, angebaut.

Da aber die Indianer, besonders die nomadischen Stämme in den Waldgegenden zu einem grossen Teil von den Nüssen und anderen Früchten der einheimischen Bäume und Sträucher lebten, müssen sie jedenfalls auf ihren periodischen Zügen und Wanderungen sehr viel zur Ausdehnung des natürlichen Verbreitungsgebietes vieler dieser Formen beigetragen haben. Die ersten europäischen Pioniere fanden, als sie zuerst Indianeransiedlungen in den östlichen Teilen der Vereinigten Staaten erreichten, sogar dicht bei den Dörfern Dickichte oder Gruppen von wilden Pflaumen- und Kirschbäumen, deren Früchte von



KALEBASSENBAUM, IZALCO, SALVADOR,
(Aufnahme des Verfassers.)

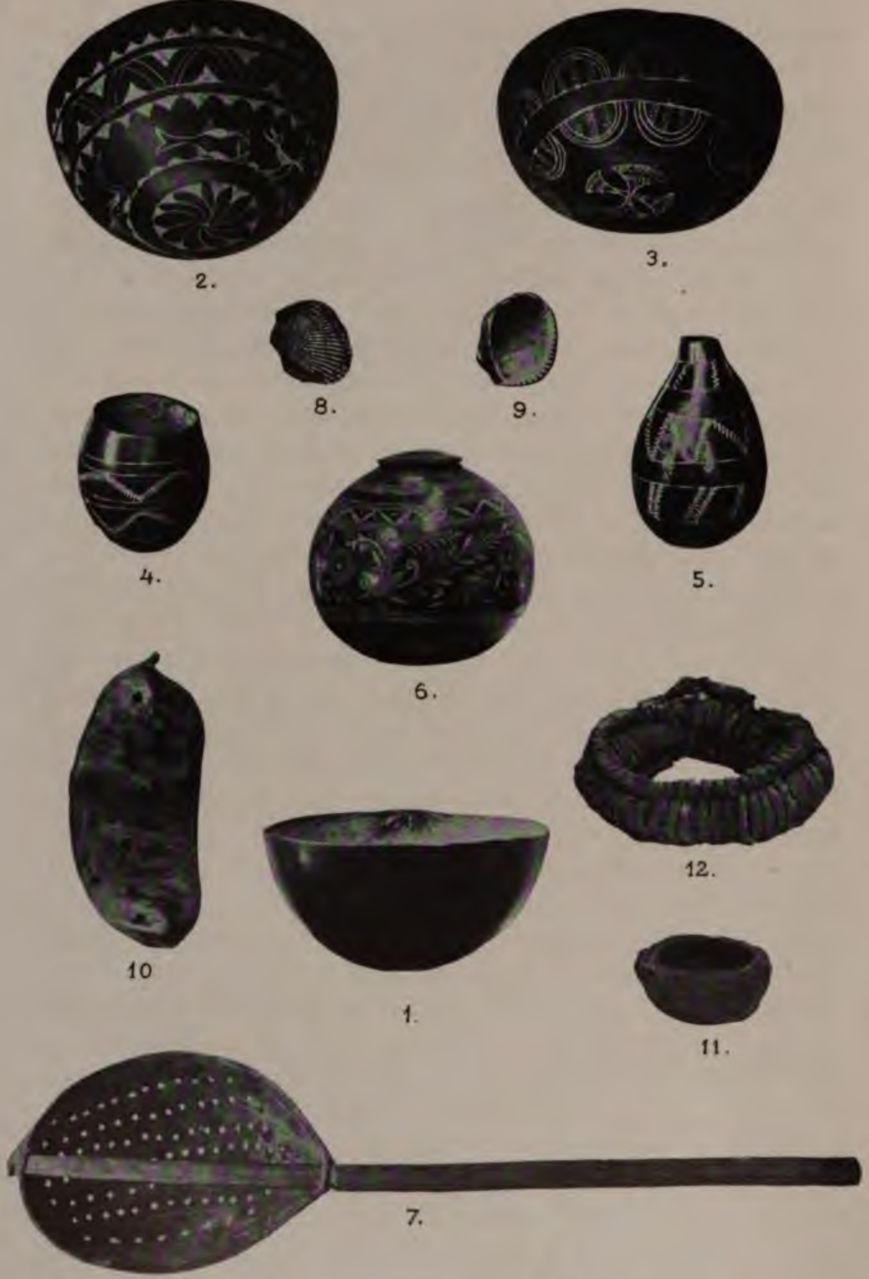
den Einwohnern jährlich geerntet und häufig trocken aufbewahrt wurden. Diese kleinen Obstgärten waren dann aber zufälligen Ursprungs und einfach über Abfallhaufen u. s. w. ihrer Mahlzeiten gewachsen. In keinem einzigen Falle gibt es im Amerika der gemässigten Zone, wie gesagt, einen Beleg für wirkliche, einheimische Kultur irgend eines Obstbaums. Nirgends ist vor der Ankunft der Weissen auch nur ein einziges der wilden Holzgewächse, die essbare Früchte tragen, cultivirt worden, weder durch Samen und Stecklinge, noch durch Verpflanzung auserlesener wertvoller Varietäten.

Sobald wir aber den tropischen Gürtel betreten, finden wir eine grosse Anzahl von Bäumen und Sträuchern, die, von den vorgeschritteneren Völkern unter die Herrschaft des Menschen gebracht, vielfach bedeutend veredelt, in Formen differencirt und allmählich von Stamm zu Stamm über grosse Gebiete verbreitet worden sind. Mehrere der tropischen amerikanischen Fruchtbäume zeigen Spuren einer vielleicht Jahrtausende alten Kultur. Solche sind die Formen von *Spondias* und *Persea,* die durch die grosse Anzahl ihrer Varietäten — mit Früchten, die sich in Farbe, Form, Grösse, Geschmack und Reifezeit unterscheiden und von den Eingeborenen mit verschiedenen Namen bezeichnet werden — das hohe Alter ihrer Abstammung bezeugen. Andere, wie z. B. die *Guilielma*palme, gestatten eine ähnliche Schlussfolgerung aus der Tatsache, dass ihre Frucht fast oder gar keine Samen enthält, was, wie allgemein bekannt, nur nach einer sehr langen Periode der Kultur vorkommt.

Unter den einheimischen Fruchtbäumen — ich gebrauche dieses Wort in seiner weitesten Bedeutung, inbezug auf alle Bäume, die wegen der nützlichen Eigenschaften ihrer Früchte cultivirt werden — gibt es wenige, die in der Hauswirtschaft der Indianer des tropischen Amerika eine wichtigere Rolle gespielt haben als der Kalebassenbaum, *Crescentia L.* Die Gattung *Crescentia,* Familie *Bignoniaceae,* zählt vier oder fünf Arten kleiner Bäume oder Sträucher, die alle dem tropischen Amerika angehören. Vom wirtschaftlichen Gesichtspunkte die wichtigste ist die Art *C. Cujete* L., die sich von Florida südwärts in Westindien, Mexiko, Central- und Südamerika bis zu den südlichsten Staaten Brasiliens findet, d. h. sich über einen Raum von mehr als fünfzig Breitegraden ausbreitet. Der Kalebassenbaum ist etwa 15–25 Fuss hoch (Plate XII). Mit seinem kurzen Stamm und seiner ausgebreiteten Krone, besonders wenn dieselbe mit zahlreichen, runden, grünen Früchten beladen ist, erinnert er den Reisenden in der Entfernung an einen Apfelbaum. Die Äste sind sehr dick, ungeteilt, beinahe vollkommen wagerecht und sehr lang. Die in Büscheln angeordneten Blätter sind klein, dunkelgrün und von elliptischer Form. Die Blüten, die unmittelbar am Stamm oder an alten Ästen wachsen, haben eine glockenförmige, violette bis schwarzbraune oder grünliche Krone. Die Früchte sind gewöhnlich rund, von der Grösse eines Menschenkopfes oder gar grösser, aber mitunter auch kleiner, und dann ei-, birnen- oder becherförmig.

Das Wort „Kalebasse,“ vom spanischen *calabaza,* wird gewöhnlich vom arabischen *gar* („Kürbis“) und *yabis* („trocken“) abgeleitet. In den Schriften der älteren spanischen Geschichtschreiber wird das aztekische Wort *xical, jical* oder hispanisirt *jicara* oft auf die Frucht der *Crescentia* angewendet, aber in der Regel wird in diesen Werken das Wort *calabaza* ohne Unterschied, sowohl für die verschiedenen Formen dieser Frucht, wie für die der verschiedenen kräuterartigen Kürbisse, Schlingpflanzen der Familie der *Cucurbitaceae,* gebraucht. Selbst in den meisten geographischen und Reisewerken der Neuzeit, sowohl als in den meisten Museen, wird der Ausdruck „Kalebasse“ in derselben Weise benutzt zur Bezeichnung dieser beiden grossen Gruppen von Kalebassen, die im primitiven Haushalt vielen ähnlichen praktischen Zwecken dienen. Die zwei Formen sind aber schon beim ersten Anblick leicht zu unterscheiden, und die indianischen Sprachen machen immer eine sehr bestimmte Unterscheidung zwischen diesen Früchten, die von zwei so verschiedenen Pflanzengruppen herrühren. Es scheint deshalb ratsam, den Ausdruck „Baumkalebasse“ zur Bezeichnung der *Crescentia*frucht zu benutzen.

Wegen ihrer Grösse und Form müssen die Früchte des Kalebassenbaums schon sehr früh die Aufmerksamkeit des primitiven Menschen auf sich gelenkt haben, und die harten Schalen dienten unzweifelhaft zu seinen frühesten Ess- und Trinkgefässen. Die Baumkalebassen waren mit den Kürbissen die



GERÄTE, ETC., VON BAUMKALEBASSE AUS IZALCO, SALVADOR.

1-6, Kalebassenschalen, schwarz: gemalt und gravirt; 7, Sieb aus Kalebasse: 8, 9, Seemuschelschalen zum Abschaben der Kalebassen; 10, Schote des Rabenbaums; 11, Tonschale für flüssiges Wachs; 12, Untersatz für Kalebassen ersten Vorbilder der Tongefässe in diesen Gegenden. Besonders in Centralamerika, wo noch heute diese Bäume in den meisten Indianeransiedlungen und deren Nähe häufig sind, findet man eine ganze Menge von alten Tongefässen, die augenscheinlich charakteristische Typen von Baumkalebassen nachahmen, besonders becher- und birnenförmige Varietäten (Plate XIII, Figs. 4, 5), die nicht unter den hartschaligen Früchten der hier gefundenen *Cucurbitaceae* angetroffen werden.

In vielen, wenn nicht in den meisten Teilen des tropischen Amerika, sind die Baumkalebassen in viel allgemeineren Gebrauch gekommen und finden vielfachere Anwendung in der indianischen Haushaltung als die Kürbisse. Dies ist besonders im tropischen Centralamerika und Mexiko der Fall. Überall in diesen Gegenden, wo die indianische Bevölkerung vorwiegt oder sehr zahlreich ist, wie in Guatemala, Salvador oder gewissen südmexikanischen Staaten, werden die Kalebassengefässe noch jetzt in fast jedem Hause und zu allen möglichen Zwecken benutzt, nicht nur als Trink- und Speisegefässe, sondern auch als Schöpflöffel, Siebe (Plate XIII, Fig. 7), Dosen (Plate XIII, Fig. 6) und Behälter für Nahrungsmittel, Früchte, Heilkräuter, Samen, Färbemittel, Salz u. s. w. Wenn in Salvador eine Indianerfrau zum Markt geht, um ihre kleinen Einkäufe vorzunehmen, kann man oft beobachten, wie sie ein Kalebassengefäss umgekehrt auf ihrem Kopfe trägt, in welchem sie dann später die eingekauften Sachen, z. B. Kaffee, Tortillas oder Früchte, nach Hause trägt.

Es gibt mehrere Gründe, weshalb die Baumkalebasse in der centralamerikanischen Haushaltung in grösserer Ausdehnung benutzt wird als der Kürbis. Erstens eignet sich die Kalebasse ihrer Grösse und Form wegen besser zu Trinkgefässen und Essschalen. Zweitens kommt die dünne elastische Schale der Baumkalebasse dem Holz an Härte nahe und ist folglich sehr viel dauerhafter als die verhältnismässig weiche und zerbrechliche Schale des Kürbisses. Zu diesen Vorteilen, die vom Gesichtspunkte der Nützlichkeit von Bedeutung sind, gesellt sich ein anderer von nicht geringerer Wichtigkeit. Die Schale der Kalebassen zeigt, nach Entfernung der grünen Oberhaut eine schöne, gelblichweisse Oberfläche, die sich sehr gut zum An-bringen von allerlei Ornamenten eignet. Wenn man den hoch entwickelten künstlerischen Sinn der centralamerikanischen und benachbarten Indianer in Betracht zieht, wird man leicht begreifen, mit welchem Eifer sich die Eingeborenen die ihren Zwecken so überaus dienliche Kalebasse nutzbar machten. Wie die Tongefässe, auf deren Ornamentirung und Verschönerung sie solch unglaubliche Sorgfalt verwendeten, dienten die Kalebassengefässe demselben wichtigen Zweck, Speisen und Getränk aufzunehmen, und wurden folglich bald als Weiheschalen bei den religiösen Festen und Ceremonieen benutzt.

Selbst heute stellen die Azteken von Salvador verzierte Gefässe auf ihre Hausaltäre, wenn sie das Fest der Toten feiern; ähnliche Gefässe, die Speisen enthalten, werden bei einem Leichenbegängnis in das Grab gelegt. Sie haben auch das Sprichwort: „Der Kalebassenbaum ist eine Gabe der Götter, weshalb der Blitzgott, Tuteco, ihm niemals Schaden tun wird. Wenn ein Blitzstrahl ein Haus trifft und alles übrige zerstört, werden die von Kalebasse hergestellten Sachen unbeschädigt bleiben." In der Mythologie der centralamerikanischen Völker spielt der Kalebassenbaum eine wichtige Rolle. Im „Popol Vuh," dem heiligen Buche der Quichés, ist ein Kapitel, in welchem der wundervolle Kalebassenbaum die Mittelfigur ist, und ich habe selbst unter den Azteken von Salvador eine andere interessante mythologische Erzählung über denselben Baum aufgezeichnet. In beiden Erzählungen wird die auffallende Ähnlichkeit im Aussehen der Baumkalebasse und eines menschlichen Schädels und die daraus gefolgerte Verwandlung des einen in die andere mit vielen originellen Einzelheiten besprochen. Unter den Namen der Götter im „Popol Vuh" wird auch der von Ah-Raza-Tzel erwähnt, was „Verfertiger von Jicara-Gefässen" bedeutet.

E. J. Payne, der in seinem Buch "History of America" den Kulturpflanzen und Bäumen der Urbewohner dieses Continents mehr Aufmerksamkeit geschenkt hat als irgend ein anderer neuerer Autor, stellt die wahrscheinlich viel zu weit gehende Behauptung auf, dass „während in den tropischen und subtropischen Gegenden der alten Welt, vom westlichen Afrika bis nach Java, den wichtigsten Fruchtbäumen noch ein heiliger

Charakter zugeschrieben wird, dieser Zug vollständig unter den Ureinwohnern Amerikas fehlt." Im Gegenteil können wir annehmen, dass Vorstellungen und Mythen über den göttlichen Ursprung und Charakter der meisten wichtigen Obst- und anderen nützlichen Bäume überall in der neuen sowohl als in der alten Welt entstanden und verbreitet sein müssen. Jedoch mag es vorkommen, dass wir für das tropische Amerika, wo noch so wenig mythologisches Material gesammelt worden ist, nicht immer den direkten Beweis zu liefern imstande sind. Wir können aber schon hinreichende Schlüsse ziehen aus dem, was bereits über Bäume wie die Kalebasse, die Ceiba und über andere Nahrungs- und Getränkpflanzen wie die Agave, den Mais, Kürbis, Maniok u. s. w. veröffentlicht worden ist.

In *Costa Rica,* wo die Bevölkerung jetzt fast ausschliesslich aus Mestizen und beinahe reinen Abkömmlingen der Spanier besteht, wird die Baumkalebasse jetzt verhältnismässig wenig benutzt. Europäische Waren haben dieselbe verdrängt. Auf dem Markt in San José und anderen Städten werden diese Kalebassengefässe jetzt in nur sehr kleiner Zahl verkauft. Sie werden meistens von Jamaica-Negern auf den Bananenplantagen der atlantischen Küste für den Markt verfertigt. Die Ornamentik besteht aus Schlingpflanzenblättern und Blumen und ist ziemlich einfach und unkünstlerisch. Zwei Methoden finden Anwendung. Entweder wird die ganze Rinde entfernt und dann die weisse hölzerne Schale gravirt, oder die Ornamente werden in die Rinde geschnitzt, wobei die ausgeschnittenen Teile den weissen Boden bloss legen, so dass die Muster deutlich hervortreten. Diese letztere Methode ist die gewöhnliche unter den Ureinwohnern von *Talamanca,* wie die Sammlungen von Dr. W. Gabb im National Museum zu Washington zeigen. Einige von den *Talamanca* Schalen zeigen auch kleine primitive Figuren einfach eingravirt in die Rinde. Im Stockholmer Museum sind ähnliche Gefässe aus Venezuela, in denen der Künstler umgekehrt verfahren ist, so dass die Teile, die dunkel bleiben, die Rinde, die Ornamente bilden.

In *Nicaragua* wird die Kalebasse ganz gewöhnlich von den Indianern sowie Mestizen benutzt. Nirgends in Centralamerika zeigen die Kalebassenschalen heutzutage solche künstlerische, schön ausgearbeitete Schnitzereien als dort; die Ornamente sind aber, soweit ich habe sehen können, ganz moderner Art, stellen Landschaften, Segelschiffe, Gebäude u. s. w. vor, alles in Holz geschnitten. Namen und Widmungen werden oft in diese Gefässe eingravirt.

In *Salvador* werden, wie bereits erwähnt, gegenwärtig Gefässe aus der Baumkalebasse in vielen Orten verfertigt und benutzt; es gibt aber nur ein einziges Indianerdorf, wo sie in sehr grossem Massstab für Handelszwecke hergestellt werden, nämlich in Izalco, im Gebiete der Azteken. Die dort bei den Kalebassengefässen angewandte Schmucktechnik ist, soweit ich ermitteln kann, bisher unter keinem von den jetzt lebenden Stämmen dieses Weltteils vorgefunden worden. Ähnliche Methoden sind aber auf archäologischen Fundstücken auf Tongefässen aus vermutlich vorkolumbischer früher Zeit wahrgenommen worden. Ich hatte während meines Aufenthalts unter den Azteken in den Jahren 1896 und 1897 Gelegenheit, diese Methode zu studiren, die als eine Art primitiver Radirung oder negativer Malerei bezeichnet werden kann.

Die Kalebassengefässe werden in Izalco ausschliesslich von Frauen hergestellt. Die Methode ist folgende. Sobald die Frucht reift, wird dieselbe mit der äussersten Vorsicht vom Baume entfernt.[1] Mit einem Messer wird die Schale je nach dem Zwecke, zu dem dieselbe bestimmt ist, geöffnet. Das flüssige, weiche Fleisch mit den darin enthaltenen zahlreichen, flachen Samen wird herausgenommen. Die nächste Arbeit besteht im Abschaben der dünnen, grünen, fast wie Leder dichten Oberhaut mittelst der Schale einer Seemuschel, *Arca sp.* (Plate XIII, Figs. 8, 9). Sodann glättet man die Schale der Kalebassenfrucht mittelst der trockenen, rauhen und harten Blätter der *Gaurumo* (*Cecropia sp.*), eines der charakteristischsten und decorativsten Bäume Centralamerikas. Die Schale

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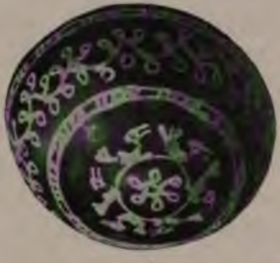
[1] Die unreife Frucht ist äusserst empfindlich gegen den geringsten Schlag, und die Indianer achten sehr darauf, dass niemand sie, während sie sich am Baume befindet, auch nur mit den Fingern berührt, da dies Flecken und Beulen an den von der Frucht herzustellenden Gefässen bewirken kann. Nur die Gefässe, die vollständig symmetrisch sind und glatte, gleichförmige Wände haben, erzielen den vollen Preis.



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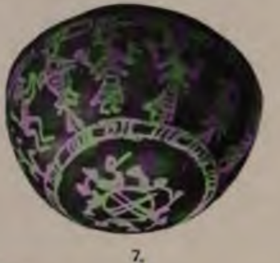

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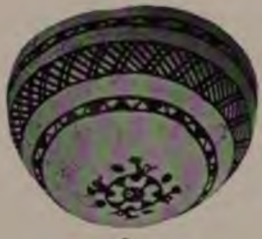

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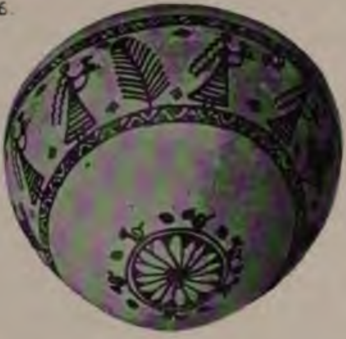

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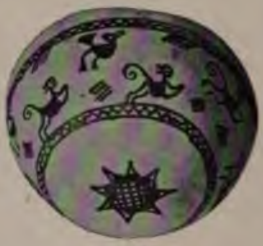

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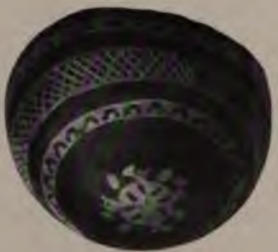

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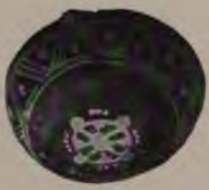

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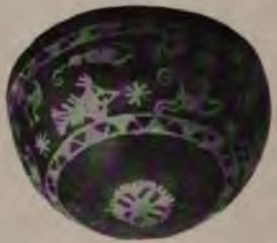

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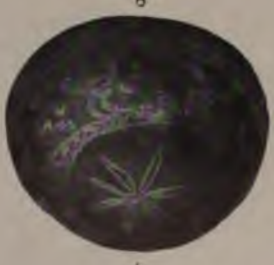

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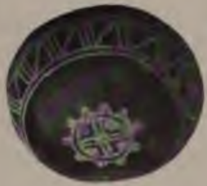

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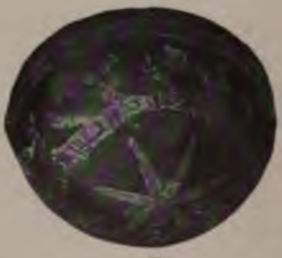

5.

KALEBASSENSCHALEN, IZALCO, SALVADOR.

der Frucht nimmt so eine sehr schöne, glatte Oberfläche von einem fast glänzenden Weiss an. Wenn dieselbe ganz trocken ist, werden die Ornamente mittelst eines gewöhnlichen kleinen Haarpinsels aufgemalt; der Pinsel wird in flüssiges Wachs eingetaucht, das sich in einer kleinen Tonschale (Plate XIII, Fig. 11) befindet und über einem Holzkohlenfeuer warm gehalten wird. Die Malerin zeichnet zuerst alle parallelen, rings um das Gefäss laufenden Linien und skizzirt dann in den so gebildeten Zonen oder Feldern die verschiedenen Figuren, worauf man das Wachs trocknen lässt. Das Wachs wird gewöhnlich von wilden Bienenschwärmen gewonnen. Seine dunkle Farbe rührt davon her, dass die Bienen geräuchert worden sind. Gegen die weisse Grundfarbe des Gefässes erscheinen die Wachszeichnungen als schwarz oder dunkelbraun (Plate XIV, Figs. 1–3).

Sodann fängt der zweite Teil der Arbeit an. In einem grossen Tongefässe wird eine schwarze, flüssige Farbenmischung gekocht. Die Bestandteile derselben sind zerstossene Holzkohlen, etwas Zucker oder Honig und pulverisirte Schote des den *Papilionaceae* angehörenden „Rabenbaums," *cacalout quahhuilt* (Plate XIII, Fig. 10). Die Holzkohlen liefern die Farbe, der Zuckerstoff macht die Lösung klebrig, und das Decoct von den Schoten macht die schöne, glänzende und besonders dauerhafte Politur, die allen diesen Gefässen das Aussehen verleiht, als ob sie gefirnisst seien. Die Mischung wird auf die Aussenseite der Kalebassengefässe mittelst eines Läppchens aufgetragen (Plate XIV, Figs. 4, 5). Die Gefässe lässt man dann noch einmal trocknen. Während die Frauen mit dieser Arbeit beschäftigt sind, sehen ihre Hände so aus, als ob sie mit schwarzen Handschuhen bekleidet wären.

Schliesslich kommt das dritte und letzte Stadium der Arbeit. Die mit Wachsmalerei versehenen und nachher ganz schwarz gefärbten Gefässe werden in ein Gefäss mit kochendem Wasser getaucht, was die Wirkung hat, dass das Wachs schmilzt, wodurch gleichzeitig die die Wachsmalerei bedeckende schwarze Farbe entfernt wird. Auf diese Weise wird der weisse Boden unter dem Wachs bloss gelegt. Das heisse Wasser schädigt nicht im geringsten die schöne Farbe, die den Rest des Gefässes bedeckt, sondern lässt sie ebenso glänzend wie zuvor. Auf diese Weise erhält man, anstatt eines weissen Gefässes mit schwarzen Ornamenten, wie die erste Behandlung ergab, ein schwarzes Gefäss mit weissen Ornamenten, die unter der Wirkung der Zeit einen gelblichen Farbenton annehmen (Plate XIV, Figs. 6–11).

Diese sinnreiche negative Methode zur Ornamentirung von Gefässen wird in Salvador, wie gesagt, nur in Izalco und nur von einigen wenigen Frauen ausgeübt. Sie wird jetzt von einer anderen einfacheren Methode schnell verdrängt, nach der die Muster einfach mit einem Messer in die schwarze Farbendecke eingeschnitzt werden. Diese Methode ist zwar schneller und billiger, aber die so hergestellten Gefässe lassen sich vom künstlerischen Standpunkt mit den anderen durchaus nicht vergleichen. Viele der geschnitzten Ornamente sind moderne Erfindungen, indem sie Rosetten und dergleichen Motive spanischen Ursprungs darstellen. Von Izalco werden *jicaras* (Plate XIII, Figs. 2, 3) und *joulones* (Plate XIII, Figs. 4, 5), die becherförmigen Kalebassen, zu tausenden von Hausirern (Quiché-Indianern) nach allen Teilen von Salvador und Guatemala gebracht.

In *Guatemala* ist unzweifelhaft die nämliche Methode benutzt worden und wird vielleicht noch in einem abseits liegenden Dorfe ausgeübt. Es befindet sich im ethnographischen Museum zu Stockholm eine kleine Sammlung von Kalebassengefässen, welche auf diese Weise decorirt worden sind; sie zeigen aber Tierfiguren von einem Typus, der von dem der Izalco Gefässe verschieden ist. Diese Gefässe wurden zusammen mit einer Sammlung anderer ethnographischen Gegenstände im Jahre 1845 dem Museum von dem damaligen schwedischen Konsul in der Stadt Guatemala geschenkt. In seinem Verzeichnis der Gegenstände der Sammlung ist leider keine bestimmte Ortsangabe für diese Gefässe gemacht. Im Werke von STOLL[1] ist eine gute Farbenreproduction eines angeblichen Gefässes von diesem Typus aus Guatemala enthalten. Die einzige die Illustration erläuternde Angabe besteht darin, dass das Gefäss „bemalt" ist. Es lässt sich aber leicht ersehen, dass es die negative Methode ist, die hier dargestellt ist.

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[1] Die Ethnologie der Indianerstämme von Guatemala (Internat. Archiv für Ethnographie, Leiden, 1895, Vol. 1, Supplement, p. 103).

Ich behalte mir vor, später in einer besonderen Abhandlung meine Beobachtungen des Vorkommens dieser verlorenen Kunst auf vorkolumbischen Tongefässen in Central- und Südamerika darzulegen, sowie auch Bemerkungen über diese und verwandte Methoden der Ornamentik der alten Welt mitzuteilen, wo die berühmte Batikkunst auf Java eines der hervorragendsten Beispiele ist. Ich will nur erwähnen, dass die negative Methode augenscheinlich auf der Inselgruppe vertreten ist, die halbwegs zwischen der alten und der neuen Welt liegt, d. h. auf *Hawaii.* Gelegentlich meiner Nachforschungen in verschiedenen amerikanischen Museen nach ornamentirten Kalebassen, erzählte mir Mr. Charles C. Willoughby in Cambridge, dass er möglicherweise derartige Gegenstände in einer vor mehr als 100 Jahren auf Hawaii gemachten Sammlung habe. Er zeigte mir eine Anzahl von flaschenförmigen, wahrscheinlich nach einer negativen Methode decorirten Kürbissen. Er versah mich auch mit Photographieen der Gegenstände, und eine derselben sandte ich vor kurzem an Dr. William T. Brigham, Director des Bishop Museum in Honolulu, der folgende Antwort sandte: „Ich habe Ihnen unser Handbuch gesandt, da es eine Abbildung einiger der ornamentirten Kürbisse moderner Herstellung enthält. Ich bin nicht von dem gewöhnlich gegebenen Bericht des Verfahrens befriedigt (d. h. Überziehen mit einer Art Firnis, der später entfernt wird, wobei der Schlamm des Kalo-Feldes das Gefäss schwarz färben soll), aber in die wirkliche Technik bin ich noch nicht eingedrungen. Sie wird meist auf der Insel *Niihau* geübt, und die Eingeborenen sind nicht gewillt, Fremden über ihre alten Arbeiten viel mitzuteilen. Unsere Sammlung enthält etwa fünfzig schöne Proben dieser Ornamentirung, wovon einige sehr alt sind und sich nur mit grosser Schwierigkeit photographiren lassen, da das verblasste Schwarz und das Dunkelbraun für die photographische Platte beinahe identisch sind. Ich habe einen alten Eingeborenen beauftragt, der Sache nachzuspüren, und wenn er etwas findet, werde ich Sie benachrichtigen. Obschon die ganze Ornamentirung der Kürbisse (*ipu pawehe*) geometrisch ist, ist sie mitunter äusserst geschmackvoll, und ich wünschte sehr, dass Sie unsere Sammlung sehen könnten, ehe Sie Ihren Artikel schrieben."

Unter den in *Mexiko* üblichen Methoden zur Ornamentirung der Baumkalebassen ist die merkwürdigste diejenige, die von den Huichol in Jalisco angewandt wird, wie sie von Lumholtz beschrieben worden ist. Die als Weiheschalen bei Opfern benutzten *jicaras* werden mit Glasperlen geschmückt, die mittels Bienenwachses in der Form von symbolischen Figuren auf der Innenseite und in seltenen Fällen auch auf der Aussenseite befestigt werden.[1]

In der Mythologie der Huichol werden *jicaras* häufig erwähnt. „Die jicara erschien zuerst auf dem Kopfe einer Hindin. Der Gott, der die alten Leute lehrte, wie man die Gunst der Götter erhalten konnte, ist auch derjenige, der ihnen zeigte, wie sie Trinkgefässe aus Kalebassen für religiöse Ceremonieen decoriren sollten. Um das nötige Blut zum Bestreichen der Weiheschale zu erhalten, mussten er und die übrigen Gestalter der Welt eine Hindin, die eine Frau war, töten."

SAHAGUN äussert sich in seiner Beschreibung der Märkte und Marktprodukte Mexikos folgendermassen: „Diejenigen Kaufleute, die *jicaras* verkaufen, kaufen sie von anderen, und um beim Wiederverkauf gute Preise zu erhalten, überziehen sie die Gefässe mit einer gewissen Substanz, die sie glänzend macht, und bemalen oder poliren sie mit einer Art Wachs oder auch mit dem Kern des gelben Zapote, worauf sie dieselben in den Rauch der Feuerstelle hinsetzen, damit sie hart werden. Beim Verkauf der *jicaras* hält man immer die aus den verschiedenen Orten Mexikos und die aus Guatemala abgesondert. Von den *jicaras* sind einige weiss, andere sind mit einem Firnisse bedeckt, der sie glänzend macht; einige haben gemalte Ornamente, anderen fehlt jede Ornamentirung. Was die Form betrifft, so sind sie rund, länglich oder spitz an einem Ende. Einige werden mit einer Unterlage, andere mit einem Griffe, einer Röhre oder einem Deckel versehen. Manche sind kesselförmig. Eine Art wird ausschliesslich als Schalen für Trinkwasser benutzt, andere, um darin *atole* zu serviren. Ausser diesen Gefässen gibt es auch eine besondere Art ornamentirter *jicaras* aus *Izuxan,* die als Waschbecken benutzt werden; es gibt auch eine Art

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[1] Diese eigentümliche Methode der Ornamentik bestand auch in Yucatan. Selbst ehe ich die Beschreibung von Lumholtz gesehen, hatte ich bei Gelegenheit eines Besuchs im Peabody Museum in Cambridge eine kleine *jicara* bemerkt, die „Yucatan" etikettirt war; die Aussenseite derselben ist mit einem schwarzen Stoffe bedeckt, worin die glänzend roten Bohnen des Erythrinabaums festgesteckt sind.

Tassen, die durchsichtig sind und im Haushalt verwendet werden. Alle werden aus der Frucht des Huaxkal-Baumes hergestellt."

Die Umstände erlauben mir nicht, auf die verschiedenen Methoden aus dem tropischen Südamerika einzugehen. In *Ecuador* und *Chile* werden die Baumkalebassen mit dem Milchsaft eines Gummibaums überzogen, und nachher wird eine Russlösung angebracht, oder sie werden bemalt und geschnitzt oder mit einem glühendheissen Metallinstrumente gravirt. Die letztere Methode war in *Peru* auch sehr häufig in Gebrauch. Die originellen Methoden im *Amazonas* Gebiete sind von SPIX und MARTIUS in ihrer „Reise in Brasilien" eingehend geschildert worden.

CHINESE METALLIC MIRRORS,

WITH NOTES ON SOME ANCIENT SPECIMENS OF THE MUSÉE GUIMET.

BY FRIEDRICH HIRTH.

LITERATURE.[1]

I. CHINESE.

1. PO-KU-T'U-LU,⁽¹⁾ by WANG FU, 30 chapters, first published in A.D. 1107, — an illustrated descriptive catalogue of ancient bronzes collected at the Museum of the Emperor Hui-tsung, at the beginning of the twelfth century (see my Über fremde Einflüsse, etc., pp. 5 et seq.). Chapters 28–30 contain 113 illustrations representing metallic mirrors, among which 48 are ascribed to the Han, 64 to the T'ang, and only 1 to the Sui period. This book has been printed in a number of editions, differing considerably in the value of their illustrations, much of the detail of the various ornaments being suppressed in the later editions. The original edition is probably not obtainable anywhere at present; but copies of a facsimile reproduction of it, — entitled "Chï-ta-chung-siu Süan-ho Po-ku-t'u-lu,"⁽²⁾ because it appeared during the Chï-ta period (A.D. 1308–12) as a reprint (*chung-siu*) of the "Po-ku-t'u-lu," the collection described in this catalogue being kept in the "Süan-ho" Museum Palace, — though exceedingly rare, are still in existence. I heard of a complete copy at Yang-chou in 1893, but found that the more I offered, the more obstinate the owner became in not wishing to dispose of it. A fragment of the work, including the chapters on metallic mirrors, is now at the Royal Library of Berlin (Hirth Collection, No. 142), — a folio print, containing in its text portions sixteen columns of seventeen characters on each leaf. A note added to each illustration states whether it corresponds in size to the original, or whether it has been reduced, and the inscriptions are facsimiles of rubbings taken from the originals. In all the later editions the illustrations have undergone considerable

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[1] The parenthetical references relate to the corresponding numbers in the list of Chinese characters at the end of the paper (p. 253).

reduction in size, involving the loss of much detail. New editions were published by the firms Pau-ku-t‘ang, Tsiang-yang, and Po-ju-ch‘ai(3) during the Ming, — the last one being dated 1588, and having as collaborators for illustrations the two best-known artists for linear drawings of the dynasty, Ting Yün-p‘öng and Wu Ting (see Giles, Introduction to the History of Chinese Pictorial Art, pp. 163 et seq.), — and also during the present dynasty, varying in style of print, but not coming up to the first two editions mentioned.

2. Si-ts‘ing-ku-kien,(4) compiled under orders from the Emperor K‘ien-lung, dated 1749, by a commission of scholars and artists, under the superintendence of two imperial princes, — an illustrated catalogue of the bronze works and coins in the collection of the Emperor K‘ien-lung. Among the members of the commission in charge of the work, we find the names of the Grand Secretaries Liang Shï-chöng (Giles, Chin. Biogr. Dict., No. 1249), Ts‘iang P‘u (Ibid., No. 337), and Wang Tu-tun (Ibid., No. 2255), and quite an array of talent out of the emperor's surroundings, including well-known artists, such as Tung Pang-ta and Ts‘ien Weï-ch‘öng (see my Scraps from a Collector's Note-Book, pp. 36 and 38). Chapters 39 and 40, being the end of the book, which is followed by a supplement on coins, are entirely devoted to metallic mirrors. Of the 93 mirrors reproduced in these illustrations, 1 is ascribed to indefinite antiquity, 57 to the Han, and 35 to the T‘ang period, several among which have already been described in the " Po-ku-t‘u-lu."

   Dr. Bushell (Chinese Art, Vol. I, p. 75) mentions a continuation of this work as circulated in manuscript under the title "Si-ts‘ing-sü-kien."(5) "Si-ts‘ing" is the name of one of the Imperial Palace buildings, where the collections described were kept. Another palace containing curiosities was the Ning-shou-kung, to which a descriptive catalogue — also existing in manuscript only, and entitled " Ning-shou-ku-kien "(6) — is devoted. I have not seen either of the two manuscripts mentioned by Dr. Bushell, and am not able to say whether they contain matter bearing on metallic mirrors.

3. T‘u-shu-tsi-ch‘öng,(7) the great cyclopædia, in over 5,000 Chinese volumes, commenced under the Emperor K‘ang-hi, and completed under Yung-chöng in 1726. Chapters 225–228 of its 32d section contain the most exhaustive material we may desire for

the study of metallic mirrors. In Chapter 225 we find the entire material of the "Po-ku-t‘u-lu" reproduced, both text and illustrations. This text is followed by extracts from the native literature, referring to metallic mirrors, arranged in chronological order. We thus have extracts from the "Tung-t‘ien-ts‘ing-lu,"(8) an archæological work of the thirteenth century (WYLIE, Notes on Chinese Literature, p. 134); the "Pön-ts‘au-kang-mu,"(9) completed in 1578 (BRETSCHNEIDER, Botanicon Sinicum, Part I, pp. 54 et seq.); and the "T‘ien-kung-k‘ai-wu,"(10) published in 1637, from which St. Julien has translated several extracts bearing on technical subjects. These extracts are followed by a number of texts, being poems, legends, rhymes, odes, and other literary effusions bearing on the subject, by authors dating from Wu-wang, the founder of the Chou dynasty (eleventh century B.C.), down to the Ming period. The last three subdivisions (*ki-shï, tsa-lu,* and *wai-pien*) consist of historical extracts from the whole range of Chinese literature, and from them we may derive many an interesting cultural fact referring to mirrors and mirror lore.

Several of the less voluminous cyclopædias contain accounts regarding the subject, without illustrations: as, for example, the "T‘ai-p‘ing-yü-lan" (completed in A.D. 983), Chap. 717; the Ming cyclopædia "T‘ien-chung-ki," Chap. 49, pp. 31–42; and of the present dynasty the "Yüan-kien-leï-han," Chap. 380, pp. 10–34, and "Ko-chï-king-yüan,"(11) Chap. 56, pp. 1–12. The well-known illustrated cyclopædia "San-ts‘ai-t‘u-hui"(12) (published in 1607) contains but one woodcut (a poor reproduction from the "Po-ku-t‘u-lu"), and only three pages of letterpress. A few rough woodcuts, representing mirrors not otherwise known, are also contained in minor works; such as the Ming cyclopædia "Ts‘i-siu-leï-k‘au,"(18) Chap. 41, pp. 1–3, and others not important enough to be mentioned, with the exception, perhaps, of the "Wu-li-siau-shï,"(14) which (Chap. 8, pp. 16–18) contains some practical suggestions regarding the subject (cf. T‘oung Pao, Vol. VI, pp. 428 et seq.).

4. KIN-SHÏ-SO,(15) an illustrated work devoted to inscriptions, published in 1822 by the brothers Föng Yün-p‘öng and Föng Yün-yüan(16) at Yen-chou-fu in Shan-tung. The work is divided into two sections, — *kin* ("metal"), treating of bronzes and other metal works; and *shï* ("stone"), treating of stone sculptures or inscriptions, each section containing six Chinese

volumes. The sixth volume of the section *kin* ("metal") is devoted to metallic mirrors; but, since the primary subject of the work is not so much the discussion of the artistic or ornamental features of the several works represented in its illustrations as that of the inscriptions found on them, such mirrors are mainly included in it as contain legends of some kind. Nevertheless we find as many as 74 mirrors depicted and to a certain extent described, the descriptive text being in many cases very suggestive, even apart from the interpretation of legends. Some of the mirrors discussed have already appeared in the "Po-ku-t'u-lu" or in the "Si-ts'ing-ku-kien;" but the greater part represents new material, which is by no means confined to the Han and T'ang dynasties. Much valuable information is contained in the letterpress accompanying these illustrations.

5. P'EÏ-WÖN-YÜN-FU,(17) Chap. 83, pp. 76–84; and Chap. 89, pp. 6–20, and the corresponding chapters in the supplement.
6. PIEN-TZÏ-LEÏ-PIEN,(18) Chap. 150, pp. 24–34.

Certain works which, to judge from their titles, are specially devoted to metallic mirrors, are being quoted in the cyclopædias of the present dynasty: but I have not seen them, nor did I find them described in my bibliographical hand-books; viz., the "Ku-king-ki"(19) (i.e., "Record of Ancient Metallic Mirrors"), by WANG TU of the Sui dynasty, and the "Pau-king-ki"(20) (i.e., "Record of Precious Mirrors").

II. FOREIGN.

1. Sir D. BREWSTER. Account of a Curious Chinese Mirror, which reflects from its polished Face the Figures embossed upon its Back (Philosophical Magazine, Vol. 1, London, 1832, pp. 438–441).
2. ST. JULIEN and PAUL CHAMPION. Industries anciennes et modernes de l'empire chinois (Paris, 1869): pp. 63–65, "Miroirs;" and pp. 234–236, "Notice sur les miroirs magiques des Chinois et leur fabrication." Reprint of a paper presented by St. Julien to the Académie des sciences, and published in the Comptes rendus, Vol. XXIV (1847), pp. 999 et seq.
3. MUSEO ESPAÑOL DE ANTIGÜEDADES, Vol. IV (Madrid, 1875), pp. 303–320. A paper in Spanish on Chinese Magic Mirrors by Don FLORENCIO JANÉR.
4. Dr. A. J. C. GEERTS in Transactions of the Royal Asiatic Society of Japan, 1875–76, p. 39, quoted in the following.

5. NATURE, Vol. XVI (London, 1877): Notes on Japanese Mirrors, by R. W. ATKINSON, p. 62; SAM. HIGHLEY, p. 132; R. D. DARBYSHIRE, p. 142; S. P. THOMPSON, p. 163; and J. PARNELL, p. 227.
6. W. E. AYRTON and JOHN PERRY, The Magic Mirror of Japan (Proceedings of the Royal Society of London, Vol. XXVIII, London, 1879, p. 727).
7. M. GOVI, Les miroirs magiques chinois (Annales de Chimie et de Physique, V. Sér., Vol. XX, Paris, 1880, p. 99); followed by the same author's Nouvelles expériences sur les miroirs chinois (p. 106), AYRTON and PERRY'S Sur les miroirs magiques du Japon (p. 110), and A. BERTIN and J. DUBOSQ, Production artificielle des miroirs magiques (p. 143); also BERTIN, Étude sur les miroirs magiques (in the same Annales, Vol. XXII, Paris, 1881, p. 472).
8. MURAOKA. Erklärung der magischen Eigenschaften des japanischen Zauberspiegels und seiner Herstellung (Mitteilungen der deutschen Gesellschaft Ostasiens, No. 31, Tokio, 1884).
9. M. PALÉOLOGUE. L'art chinois (Paris, 1887), pp. 67 et seq.
10. F. HIRTH. Chinesische Studien (Leipzig, 1890), pp. 272–274.
11. F. HIRTH. Uber fremde Einflüsse in der chinesischen Kunst (Leipzig, 1896). Deals chiefly with Hellenistic influences as shown in the so-called "grape-mirrors," of which it contains 15 illustrations reproduced from the "Si-ts'ing-ku-kien." Note the Appendix containing chronological data.
12. F. JAGOR. Japanische Zauberspiegel (Verhandlungen der Berliner Ges. für Anthropologie, 1898, pp. 527 et seq.).
13. S. W. BUSHELL. Chinese Art, Vol. I (London, 1904), pp. 94–97, with two photogravures from originals, — "Mirror with Græco-Bactrian Designs" and "Mirror with Sanscrit Inscription."

EARLY MENTION OF MIRRORS.

Mirrors cast of bronze are among the oldest products of Chinese industry. WANG FU,(21) the art historian of the twelfth century A.D., who compiled the "Po-ku-t'u-lu," ascribes their invention to the Emperor Huang-ti (2704–2595 B.C.). This, of course, is a statement of very doubtful value, and probably means no more than that no definite time can be quoted, within the more trustworthy period of ancient history, for the origin of this object of culture. Since the oldest relics of this kind handed down to posterity date from the Han dynasty, I do not, of course, look upon the specimen depicted in the "Si-ts'ing-ku-kien" (Chap. 39, p. 1, described as a relic of a much earlier period, for which reason the Emperor K'ien-lung provided it with an inscription) as an absolute proof against this assertion. All we know about mirrors previous to this time is based on literary evidence; but of this we possess quite enough to make it sure that metallic mirrors of some kind were in use early during the Chou dynasty. I do not refer to the many statements to this effect which we find in the several works of the Han dynasty, but shall quote a few instances from the oldest historians. The "Tso-chuan"(22) mentions the gift made by the emperor of "a queen's large girdle with the mirror in it,"[1] which fact is recorded under the year 673 B.C. The word here used for "mirror" is *kien,*(23) with the radical *kin* ("gold," "metal") at its side.

Another early instance of a mirror mentioned during the Chou dynasty is found in the "Chan-kuo-ts'ö,"(24) in connection with a personage by the name of Tsou Ki.(25) The anecdote there quoted says, "Tsou Ki was over eight feet tall, and, being of prepossessing appearance, he once had donned his court dress, and, while *looking into a mirror* (*k'ui king*(26)), remarked to his wife, 'Do you think I am as handsome a man as Sü-kung [a great beau of his time]?' She said, 'Certainly, and much better looking, too;' then he asked his concubine, with the same result; and finally he asked a stranger, who also said Sü-kung could not compare himself to him in point of beauty. He was, however, wise enough not to trust too much to his flatterers, since his wife, he thought, was not an unbiased judge, his concubine was afraid of him, and the stranger expected a favor from him. He then went to court for an audience with King Weï of Ts'i,(27) to whom he mentioned this little incident with a practical application to his royal position. The king's seraglio, he thought, were not unbiased in their judgment of him, his ministers were afraid of him, and the people at large all expected favors from him. The king took the lesson in good grace," etc.

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[1] LEGGE, Ch'un-ts'iu, Vol. 1, p. 101.

What concerns us in this anecdote is the unmistakable mention of a mirror — here called *king*,(28) with the radical *kin* ("metal") at its side — in the "Chan-kuo-ts'ö" ("History of the Contending States"), dating generations before the Han dynasty,[1] and referring to Tsou Ki, a well-known historical personage, the philosophic counsellor to King Weï of Ts'i (North Shan-tung), who reigned from 378 to 343 B.C. Tsou Ki must have lived about this time, since he and his relations to King Weï are repeatedly referred to by Ssï-ma Ts'ien.[2] Unless the whole anecdote has been interpolated by Liu Hiang, the Han editor of the "Chan-kuo-ts'ö,"[3] — which, in the face of so much of the statements of the work being accepted as history, is scarcely less reliable than Ssï-ma Ts'ien's, — we have no reason to doubt that metallic mirrors (*king*) must have been in use for toilet purposes about the middle of the fourth century B.C. Here we have an instance of the mirror being referred to as actually used. The occurrence of the word (used metaphorically, however) is very much older, thus proving the general use of the article indirectly, since it occurs in the "Shï-king;"[4] and the ode in which it occurs is referred by MAU CH'ANG,(31) one of the oldest commentators of the "Book of Odes," to the period 866–854 B.C. I look upon this passage as an even stronger argument in favor of the early use of mirrors (*kien*) than the unmistakable mention of mirrors in the "Chou-li,"(32) which would indeed bring us back to the twelfth century B.C., if it were certain that this code of government and social life was draughted to its full extent, as it now stands, by Chou-kung, the brother of Wu-wang, the first king of the Chou dynasty (1122–1115 B.C.); for we have to take into account the possibility of the "Chou-li" representing a collection of government regulations which may have originated with Chou-kung as the first great legislator of the dynasty, but were added to in the course of generations until the text had attained its present wording.

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[1] I-shï,(29) Chap. 108, p. 12; T'u-shu-tsi-ch'öng, Chap. 227, ki-shï, p. 1.

[2] CHAVANNES, Les mémoires historiques de Se-ma Ts'ien, Vol. v, pp. 240, 244–249, 252–254, and 256.

[3] CHAVANNES, Ibid., Vol. I, Introduction, p. clii.

[4] Part I, Book III, Ode 1, 2, edition of LEGGE, p. 38; *Wo sin feï kien*(30) ("My mind is not a mirror").

An important passage, probably still older than that in the "Book of Odes," is contained in the "Shu-king,"[1] in the so-called "Announcement about Drunkenness," as Legge translates the title of the book, in which the Duke of Chou gives his younger brother Föng a lesson on the importance of practising temperance in the use of spirits. In this address he quotes an old proverb (*ku-jön yu yen yüe*(33)), which may have been on record many generations before his time (the eleventh century B.C.), to this effect: "One should not (have one's own image) reflected in the water, but one should have other folks' (images) reflected; now that Yin (i.e., the Shang dynasty) has seen its fate fulfilled, are they not to us a great mirror (*ta-kien*) from which (to learn) how to secure the repose of our own time?" The words I have translated by "reflected" and "mirror" ("reflection") are represented by the mere phonetic *kien*(34) without the radical *kin* ("metal"), and I do not see why that old proverb should involve the use of metallic mirrors at all. On the contrary, I believe that the words *jön wu yü shui kien*(35) ("man should not get reflected in the water") are a remnant of those times, lying far beyond the Chou dynasty, in which no mirrors of any kind were known; when those who wished to see their own image were obliged to look into a sheet of water, possibly in a flat basin covered with a coat of black varnish.

The conclusions we may be allowed to draw from these selected passages may amount to this: some time during the Shang dynasty (1766–1122 B.C.) there was a proverb involving that one had to look into water in order to see one's image reflected, which means that mirrors were unknown. Metallic mirrors can be shown to have existed in 673 B.C. as girdle-ornaments, and about the middle of the fourth century B.C. to have been unmistakably used for toilet purposes, probably much earlier.

TERMINOLOGY.

We find two words applied to the metallic mirrors of antiquity, *kien*(23) and *king*,(28) both usually written with the radical *kin* ("gold" or "metal"), indicating that the two words, by force of their meaning, belong to the category of metals. In the classics, *kien* is sometimes written without this radical, when it would simply mean "to examine," "to reflect," or "the reflection;" so is *king*, especially in the inscriptions appearing on the mirrors themselves. Altogether, radicals are quite commonly suppressed, not only in the ancient hieroglyphic styles of writing, but even in comparatively recent texts, such as the "Chu-fan-chï," by CHAU JU-KUA(86) (thirteenth century A.D.); e.g., *tuan*(87) ("satin"), which is there written without its radical for "silk." There is apparently no difference in the use of the two words, as far as ancient texts are concerned, unless it is this: that *kien* can be used as a verb in the sense of "to reflect," which is not the case with *king*. After the introduction of glass mirrors, the term *king* was applied to them, and from the meaning of "glass mirror" it gradually developed into that of "a transparent lens of glass or of crystal." *Yen-king*(88) ("eye-mirror," or "eye-lens") is the modern term for "spectacles," or a "magnifying-glass." The great encyclopædia[1] quotes from the "Fang-yü-shöng-lio"(89) that the country Man-la-kia(40) (Malacca) produces *ai-tai-king*(41) (literally, "cloudy mirrors," or "lenses"): "Old men not able to distinguish fine writing put them on their eyes, when the writing will be clear."(42) This is evidently an early mention of spectacles of some kind, apparently imported from Europe by way of Malacca. A book called "Fang-yü-shöng-lan" dates from A.D. 1239; but it cannot be the identical one, on account of the name "Malacca," which it appears did not become known in China until two hundred years later.

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[1] Part v, Book x, 12, edition of LEGGE, p. 409.

MATERIALS.

Polished jade may have been among the earliest materials used as a substitute for the time-honored water-sheet, the mirror of nature. A jade mirror (*yü-kien*(44)) is mentioned by Kuan-tzï (died 645 B.C.); and in A.D. 485 a jade mirror (*yü-king*(45)), with certain bamboo tablets covered by inscriptions in tadpole characters, was found in an ancient tomb near Siang-yang in Hu-peï Province, which the great polyhistor Kiang Yen

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[1] Chap. 228, tsa-lu, p. 4.

(A.D. 443–504), in whose biography the account of the discovery appears, declared to date from the time of Süan-wang (827–782 B.C.).[1] The descriptive catalogue of jade-works, the "Ku-yü-t'u-p'u,"(46) published in A.D. 1176, contains accounts of every possible variety of this ancient branch of sculptural art, but none of jade mirrors; and it seems, that, from causes easily understood, jade mirrors never rose to become a regular industry after the introduction of the metallic article. The cyclopædias also refer to *stone* mirrors, pure and simple; and an eccentric Buddhist scholar even tried one day to grind and polish a common brick into a mirror, with what success we do not hear.[2]

Alloys of *copper* and *tin* in equal parts yielded the bronze used at one time or another in the manufacture of mirrors during the Chou dynasty. The "Chou-li,"[3] in its description of the various offices in that constitutional period, when the entire social and economic life of the Chinese was forced into a detailed system of government interference, speaks also of the officials in charge of bronze-works. Such works, of course, had existed centuries before Chou-kung, the alleged editor of the "Chou-li;"(32) but I am inclined to look upon that great legislator merely as the creator of the system, while allowing for additions and modifications made by the several governments of the dynasty succeeding that of Chou-kung as Wu-wang's prime-minister. The "Chou-li," in its present shape, enumerates the different experts in charge of bronze-works,— beaters, melters, etc. Each of them had his well-defined province; and for the several bronze alloys they turned out, the government had once for all provided a fixed standard. There were six kinds of alloy, defined by the proportion of tin in so many parts of the alloy (consisting of tin and copper), and no other metals are mentioned as entering the alloy. The proportions were as follows.

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[1] Nan-shï, Chap. 59, p. 4.

[2] P'eï-wön-yün-fu, Chap. 83, p. 80.

[3] Transl. Éd. Biot, Le Tcheou-li (Paris, 1851), Vol. II, pp. 491 et seq.

	Parts Copper.	Parts Tin.
1. Bells and sacrificial urns	5	1
2. Axes and hatchets	4	1
3. Halberds and lances	3	1
4. Sword-blades	2	1
5. Siau(47) (a knife used for engraving characters on wooden tablets) and arrow-heads	3	2
6. Metallic mirrors (*kien-sui,*(48) i.e., "mirror-igniters")	1	1

It will be seen from this extract, that, according to the "Chou-li," the alloy of mirrors contained a larger proportion of tin than that of any of the other bronze works. This does not mean, of course, that the original standard was not abandoned in later times; nor is the use of other metals in the alloy excluded in later works, as we learn from some of their inscriptions: e.g., Han mirrors, described and depicted in the "Kin-shï-so,"[1] said to have been cast from an alloy of copper from Tan-yang (the present Ning-kuo-fu), silver, and tin. Mirrors or bronze inlaid with gold, and of solid silver inlaid with iron, are mentioned with iron mirrors in the time of Ts'au-ts'au, who died A.D. 220. Altogether, there is no lack of passages showing that other metals entered the alloy.

The "T'ien-kung k'ai-wu,"(10) quoted in the great cyclopædia, gives the following account of mirror alloys: "Mirrors are cast in moulds of concrete, the alloy, according to the 'K'au-kung-ki'(49) (the technical part of the 'Chou-li'), consisting of copper and tin in equal parts, the so-called *kien-sui*(48) (or 'mirror-igniter') alloy. The polish of mirror surfaces is done by laying on quicksilver, since the bronze alone will not permit of such fine polish. During the period K'ai-yüan (A.D. 713–742) of the T'ang dynasty, certain percentages of silver were added to the bronze; and in such mirrors as contain a few taels of silver, this will cause cinnabar-colored stripes and spots to show on the surface, as the visible indication of the presence of gold or silver in the alloy. The bronze censers of our Süan-tö period (A.D. 1426–36) also owe their origin to the fact that, during a conflagration in some imperial treasury, gold and silver were mixed with bronze works and melted into lumps, which were ordered to be cast into censers. T'ang mirrors and Süan-tö censers are therefore found in quantities among our court collections." The legend of the conflagration in the Süan-tö period is referred to a Buddhist temple, with its images of gold, silver, and bronze, by KU T'AI, the author of the "Po-wu-yau-lan"(50) (Chap. 1, p. 12); but he entirely discredits it in ascribing the origin of the Süan-tö bronzes to the emperor himself, who had called for a report from his experts on the best methods of producing a really superior alloy. Ku T'ai was a court official under the Ming dynasty; and his position, in connection with the connoisseurship exhibited throughout his book, gives him a certain authority.

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[1] Kin, Vol. 6, fols. 32–34.

Iron mirrors (*t'ie-kien*(51)), simply so called, are described in the "Po-ku-t'u-lu," one being dated in the Sui dynasty, twenty-one in the T'ang. It seems that they did not survive long after the twelfth century, since they are not represented in the K'ien-lung collection. They may have been consumed by rust in the course of centuries, just as Chinese records speak of iron drums (besides bronze drums), none of which seem to have been preserved. The oldest mention I have been able to find of this variety occurs in the "Si-king-tsa-ki"(52) (Chap. 6, p. 2), where the opening of a tomb under Wu-ti (140–87 B.C.) is referred to as belonging to King Ai of Weï (318–296 B.C.) with "several hundred iron mirrors."

Though not directly connected with our subject, it may be of interest to note that *glass* mirrors, too, had been imported from abroad long before the metallic-mirror industry saw some of its best days during the T'ang dynasty. The "Liang-ssï-kung-ki,"(53) a work referring to the Liang period,[1] relates that the ocean ships of Fu-nan (Champa) brought from western India,[2] for sale, "mirrors made of green glass" (*pi-po-li*(55)). The price demanded for such a mirror was a million strings of cash, then about as many dollars, — an incredible price, if we consider the purchasing-power of money in those days.

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[1] A.D. 502–557, quoted in the T'u-shu-tsi-ch'öng 32, Chap. 227, ki-shï, p. 4.

[2] *Si-t'ien-chu*,(54) by which name sometimes the west of Asia, including Syria, is covered.

The period is quite late enough to explain them as the product of Syria (Ta-ts'in), then probably the only country in the world where they could be produced. PLINY,[1] having described the manufacture of glass at Sidon, says of that city that it "had also invented (glass) mirrors" (*etiam specula excogitaverat*). This shows that they must have been known in Syria in the first century A.D., though MARQUARDT[2] adds that positive evidence is not on record before a comparatively late period, possibly the sixth century A.D., which would have been quite early enough for the Chinese notice referred to. China had then had old connections with the silk-manufacturing cities on the Phœnician coast, her silk being partly paid for by purple-dyed textures, precious stones, and glass. During the Liang dynasty particularly, the sea-trade with Syria by way of India, Fu-nan (Champa), Annam, and Tongking, was in full swing;[3] and the shrewd merchants of Syria probably were not slow in making the most of this new style of mirror with purchasers placing so much value on mirrors generally.

CHINESE METALLIC MIRRORS OUTSIDE OF CHINA.

The Japanese have from the remotest periods been eager collectors of Chinese antiquities, and in no country of the world are these works of art more highly appreciated than in Japan. It is almost a matter of course that old Chinese mirrors should have been among them. The island kingdom has entertained lively intercourse with China, both through missions sent to the court and through private travelling-enterprise, ever since the first "tribute-bearers" came from there to China, in A.D. 57. Regular junk traffic, we know, existed about A.D. 1200 between the ports of Japan and Ts'üan-chou-fu in Fu-kien.[4] It was the Japanese who went to China in search of articles of *vertu,* not *vice versa:* they came as friends and foes, in peace and war; but they hardly ever came without taking back with them as much in the way of literary and art treasures as they could get. This was particularly the case during the several raids made by Japanese adventurers under the Ming dynasty between the years 1411 and 1439. Trade with China has, for long periods throughout antiquity and the middle ages, been under the strictest prohibitions, and much of the exchange of produce with foreign countries took place under the pretext of tribute (***kung***) to the Chinese Court. The tribute-bearers almost invariably received certain gifts in return; and the Chinese historians, reporting the transaction, often distinctly state that, "such and such counter-gifts being prayed for by the tribute-ambassadors, the issue of them in such and such quantities was ordered by the Emperor." Independent distant nations, like the Arabs, would not have continued to submit to the many humiliations which Chinese national prejudice imposed on such court visits, had not the "trade"— for such it was, in reality, under the name of "tribute"— been a paying one. With all the drawbacks connected with this court monopoly, the system by which merely the sovereign was supposed to carry on barter-trade through an exchange of substantial courtesies has had its cultural advantages: for, being nominally destined for a crowned head, none but the best works of industry and art were sent; and this may account for the best things of a country like China being found abroad, as we find the finest celadon porcelains in the old Khalif countries, and the best old Chinese paintings in Japan. It is from some of these tribute-missions that we may draw conclusions as to an early demand for Chinese metallic mirrors in Japan. We read in "The History of the Three Kingdoms"[1] that in A.D. 238 ambassadors arrived from the queen of one of the several little kingdoms then occupying the present Japan, with rich presents for the Court of the Weï dynasty; and in January of the following year, the Emperor Ming-ti ordered a number of counter-gifts to be handed over to the ambassadors, comprising, among precious brocaded stuffs, supplies of painters' silk, gold, pearls, etc., *one hundred bronze mirrors*. In A.D. 240 a further mission came from Japan, when mirrors were given away again; and since these tribute-missions were in the sequel repeated every now and then without the description of tribute-articles and counter-gifts being entered in the histories, we may conclude that great numbers of the bronze mirrors, especially many of the artistic works of the Han dynasty, have gone the same way.

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[1] Hist. nat., xxxvi, 193.

[2] Privatleben der Römer, 2d ed., p. 758.

[3] See the Liang-shu, quoted in my China and the Roman Orient, p. 47.

[4] See my Ancient Porcelain (Leipzig, 1888), p. 67.

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[1] San-kuo-chï, Weï, Chap. 30, p. 27.

It is quite probable that Japan was not the only country to participate in this class of gifts; indeed, we may not be surprised to find the article being occasionally picked up in any neighborhood the rulers or inhabitants of which have at some time or other had connection with the courts of China. In his excavations in the Caucasus region, the late Professor Virchow discovered, among other ancient relics, a metallic mirror,[1] the shape and ornamental arrangement of which (concentric sections and central knob with perforation for cord) caused me to suggest that it was not of Scythian, but of Chinese origin.[2] I believe so even now; but I am bound to admit the force of the arguments advanced by Dr. P. REINECKE,[3] of the Roman and Germanic Museum in Mainz, who draws attention to very important analogies between the construction of the Ghinese metallic mirror, as known to us in existing specimens, and a number of mirrors supposed to be of "Scythian" origin (to use a name which may cover all possible doubtful nationalities filling the gap between ancient Europe and the China of the Chou dynasty). These "Scythian" mirror types — the oldest specimen of which, for reasons given by Dr. Reinecke (p. 144), should be ascribed to the sixth century B.C. — have no back-ornament, are disk-shaped, and have the perforated central knob, just like the Chinese varieties. It would of course be premature for any one to commit himself to an opinion regarding these Scythian types — some of which were discovered so far west as the south of European Russia — who has not seen them himself, and, more than this, who has not sufficient experience, based on the technical examination of specimens, chemical analysis, etc., both with Scythian and Chinese discoveries.

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[1] See illustration in VIRCHOW'S Report (Zeitschrift für Ethnologie, 1890, Verhandl., p. 449).

[2] Zeitschrift für Ethnologie, 1891, pp. 808, 809.

[3] Uber einige Beziehungen der Alterthümer China's zu denen des skythisch-sibirischen Völkerkreises (Ibid., 1897, pp. 141–147).

The problems before us are: (1) Have the inhabitants of Scythia (this term to be understood in its widest application, and therefore covering the Huns of the Chou dynasty as the next-door neighbors of the Chinese) imitated contemporaneous Chinese patterns, of which we possess no specimens, but which, according to Chinese ancient records, must have existed in China long before the sixth century B.C., the oldest date suggested for the Scythian types? (2) Could the pre-Christian specimens found in western Scythia possibly have been imported from China, and thus represent those types of the Chou dynasty the existence of which would not be known to us but for certain allusions in the contemporaneous Chinese literature? (3) If we find that these two questions must be answered in the negative, who invented the perforated central knob, — the Chinese, or the Scythians?

SHAPE AND SIZE.

Nearly all the Chinese metallic mirrors we know of are disk-shaped; and they are held by a silk cord run through a knob in the centre of the unpolished surface, as shown in an illustration of BUSHELL.[1] But few specimens are square. The handle — cast of one piece with the mirror itself, characterizing the Japanese metallic mirror as well as the one of classical antiquity[2] — never appears on the Chinese mirrors depicted in the standard works on the subject; but "hand-mirrors having handles" are said — in a work which I believe to be made up of archæological notes left by Li Lung-mien, the painter known in Japan as Ririumin (tenth century), and which I find quoted as "Li-shï-lu" in the "T‘u-shu-tsi-ch‘öng,"[3] — to have been used under the Emperor Wu-ti (died 87 B.C.) by the dancers of pantomimes.(56) Since we know that this emperor was a great curio-hunter, who sent frequent caravans to western Asia to collect objects of art, there is a possibility of the hand-mirror with handle (called *wu-king,* i.e., "pantomime mirror," in the passage referred to) having been constructed in imitation of Greek or Roman patterns. The handle-bearing mirror, used for toilet-purposes both in China and Japan, may have originated from it. It was and is certainly so used in China, as well as the standard-shaped knob-mirror. In a modern painting representing a Chinese lady at her toilet, the lady is seated before a round metallic mirror set in a mirror-stand, while she holds behind her head a mirror with a handle, in order to be able to see the back of her coiffure.

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[1] Chinese Art, Vol. 1, p. 96.

[2] MARQUARDT, Privatleben der Römer, 2d ed., p. 690.

[3] L.c., ki-shï, p. 1.

Very large mirrors, a number of feet long and broad, probably rectangular in shape, and reflecting the whole human figure, are also mentioned in the post-Christian literature, some of them being imported from abroad. Several passages are on record which tell of the importation of such large mirrors under the Emperor Wu-ti, who hoarded up many precious things he had sent for from western Asia; but they are mostly blended with legendary matter, which makes it difficult to treat them seriously. Such large metallic mirrors, aside from the possibility of their having been originally constructed in China itself, could easily be accounted for as importations, or imitations, of Western specimens, certainly during the first century A.D., when Seneca the Younger mentioned mirrors of sizes equal to those of human bodies.[1]

Otherwise mirrors were generally so made as to reflect neither more nor less than a human face; and the diameter of the disk chiefly depended on the principle on which the reflecting surface was constructed, whether plane, concave, or convex. SHÖN KUA (A.D. 1030–93) says, in Chap. 19, p. 3, of his interesting cyclopædia "Möng-k'i-pi-t'an,"(57) "In casting mirrors, the ancients would give a large mirror a plane, a small one a convex, surface; for all mirrors will reflect a man's face large if they are concave, and small if they are convex. In a small mirror one cannot see the whole of a man's face, for which reason the surface is made slightly convex; and by reflecting the human face in reduced size, a mirror may be small and yet take in a man's face complete, though the reflected image will correspond in size to the size of the mirror. This was one of the clever achievements in which the artists of later periods were not able to turn out work comparable to the ancient mirrors: they could only scrape and polish plane surfaces, thus recalling the music-master K'uang, who would make a mess of his notes (without his pitch-tubes)."[1] This passage seems to imply that in the eleventh century A.D., when Shön Kua wrote, the art of making concave and convex mirrors had been lost. Unfortunately he does not state when this was the case; but for that, the manner in which the reflecting surface is worked would in many cases serve as a criterion of age. Neither am I able to say whether the secret of working concave and convex mirrors was re-discovered after the eleventh century; but the fact that the mirrors of the Ming and present dynasty are usually of much greater sizes leads me to think that modern workmen were afraid to approach the more laborious methods of the ancients.

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[1] MARQUARDT, Privatleben der Römer, 2d ed., p. 690.

We cannot, of course, look upon Shön Kua's statement as a hard and fast rule; for we read in the "Chön-chu-ch'uan,"(58) a work of the Ming dynasty,[2] that Sü Hüan,(59) the well-known editor of the ancient "Shuo-wön Dictionary" (A.D. 916–991), was in possession of a mirror which would reflect just enough of a face to show merely one of its eyes, and this may have been one of the ancient "igniters;" and according to the "Hua-shu,"(60) a Tauist work of the tenth century,[3] a complete outfit contained four mirrors,—one for "seeing big," one for "seeing small," one for "seeing plain," and one that would invert the object to be seen.

USES.

FOR TOILET PURPOSES.—It need hardly be said that the metallic mirror, being the only apparatus available for the purpose, next to a sheet of water, was an indispensable perquisite of a toilet-room. Many passages to this effect appear even in the pre-Christian literature, the several classical texts using the term quite commonly in figurative language, too (see also "Early Mention of Mirrors," p. 214). From Shön Kua's remarks, it would appear that mirrors of every kind of construction had been in use; but, from the way in which the philosopher HAN-FEÏ-TZÏ[1] introduces the mirror into his speculative discourse, I am led to believe that magnifying-mirrors were much in favor, even for toilet purposes. The philosopher says, "The ancients knew that the eye is too short to see one's self, for which reason they used a mirror to see their face; and [they knew that] their intelligence was too limited to know themselves, for which reason they used the *tau*(61) (Lau-tzï's method of reasoning) to correct themselves. A mirror in which one does not see the flaws (in one's face is like) a *tau* (or a philosophy) by which one is not enlightened on the wickedness of sin. If the eye has no mirror, it has no means of straightening up the hair on the temples and eyebrows; if man's self has no *tau*, he has no means by which to know his errors." In a passage quoted in the same cyclopædia from HUAI-NAN-TZÏ,(62) it is insinuated that "a newly-made mirror is at first dim, but, on having been polished, one can examine by its use 'the finest hairs' (*weï-mau*) of the temples and eyebrows."

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[1] See *Mencius*, LEGGE, p. 164.

[2] Quoted in Ko-chĭ-king-yüan, Chap. 56, p. 6 b.

[3] WYLIE, p. 127, quoted in Ko-chĭ-king-yüan, Ibid., p. 7.

On the other hand, mention is also made, by way of curiosity, of a mirror bearing an inscription of the Han dynasty having fallen into the hands of the poet Su Tung-po (about A.D. 1078), which reflected human figures quite small.[2] The account adds that this is a peculiarity of ancient mirrors.

RITUAL. — The "Ku-kin-chu,"(63) a work originally of the fourth century A.D., but as it now stands of doubtful identity with that old text, yet giving us (Chap. 2, p. 5) a clear definition of the term *yang-sui*(64) (i.e., "the sun-igniter"), says, "It is made of bronze, and has the shape of a mirror; when held against the sun, it will produce fire, which is obtained through being caught by a heap of dried Artemisia leaves." Artemisia moxa is largely used in medicine as a counter-irritant in cauterizing the skin. "The heat of the sun's rays collected by a mirror is said to be the proper way of igniting the moxa."[3] The Chinese name is *ai*,(65) for which *ping-t'ai*(66) ("ice terrace") occurs, owing to the leaves being, in default of a mirror, ignited by means of a piece of ice, cut into a roundish form, which collected the sunbeams.[1]

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[1] Third century B.C., quoted in T'ien-chung-ki, Chap. 49, p. 33.

[2] Ibid., p. 41.

[3] PORTER SMITH, Contributions towards the Materia Medica, etc., of China, p. 25.

According to the institutes of the Chou dynasty, by which the doings of the people, from the emperor down to the lowest subject, were forced into certain regulations, fire used for any purpose, including kitchen fires, lamp and candle lights, was produced from heaven under certain ceremonies. There were two kinds of fire,—the people's fire (*min-hŭo*), and the state fire (*kung-huo*(67)),—each being under the superintendence of a special government officer, who had to see that at certain seasons the so-called "new fire" was obtained under the proper ceremonies. Whoever used fires in his household had to keep a flame alive day and night, all through the season; and to allow it to go out was punishable. The "new fire," obtained by rubbing with a gimlet certain kinds of wood, varying in the four seasons, was kept in a temple, where the people, on having extinguished their "old fires," got delivery of it for household use till the season changed again. The change was later on confined to an annual term in the spring, when the ceremony took place on the fifteenth day of the second moon (some time in the beginning of April); and since their forefathers of the Chou dynasty had on that day to content themselves with cold meats, the Chinese, up to the present day, speak of this festival as the "Cold Meats Day" (*han-shï*(68)). The "state fire," used for sacrificial purposes, was obtained by collecting the rays of the sun in a concave mirror, the casting of which had also to be done under certain ceremonies exactly at midnight on the day of the solstice.

This is clearly one of the earliest uses to which the mirror was put, and the art of manufacturing concave ones was doubtless well known some time during the Chou period. Another kind of mirror, which need not necessarily be one of the same construction, was used to "receive the brilliant water from the moon," apparently by exposing it during clear moonlight nights, when it would be covered by the night dew, the water thus obtained being used in the sacrifices.[2] It is probably in allusion to its ancient use in drawing water from the moon, that certain associations between the mirror and the moon have arisen. Thus we read that in the K'ai-yüan period (A.D. 713–742) a monthly feast was given to the ladies of the city of Ch'ang-an, — possibly as representing the female principle to which the moon is subject,— when metallic mirrors would be rapped on while being held against the moon. Another anecdote speaks of a mirror having the figure of a hare on the back. If held against the moon at full-moon time, the hare would disappear as if by magic.[1]

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[1] BRETSCHNEIDER, Botanicon Sinicum, Part III, p. 147.

[2] See BIOT, Le Tcheou-li, Vol. II, pp. 194 and 381.

To increase Lamp, Candle, or Sun Light.— In some of their early superstitions, the Chinese have anticipated the leading ideas of great inventions, the final discovery and development of which fell to the lot of Western thinkers. It looks as if the inventors of such legends were guided by an instinctive intuition as to what might be within the range of possibility; and they do not stand alone in this respect, unless ancient legends, like the one about the mirror placed on top of the Pharos tower of Alexandria and "contrived in such a manner that the inhabitants might observe the motions of their enemies at the distance of fifty days' sailing," are more than mere myths.[2] The Chinese have in their ancient and mediæval books similar accounts, clearly the result of a lively imagination, but yet involving matter-of-fact principles well known to later generations. What else is it but a practical demonstration of the theory of sound-reflection, coupled with that of light-reflection, when we read, among a mass of fabulous accounts in the "Shï-i-ki,"(69)— a work of the fourth century A.D.,[3] — that at the time of Ling-wang (sixth century B.C.) a concave metallic mirror, three feet in diameter, was credited with lighting up a room at night, and that, "if you spoke into the mirror, the sound would be reflected by way of answer"? And is it not an involuntary anticipation of many a catoptric apparatus now described in the Chinese "List of Lighthouses," when we hear of ancient mirrors able to throw light to a distance of 200 li?[1] The account of an Indian mirror in the "Liang-ssï-kung-ki,"(53) which refers to the period A.D. 502–557, is much more modest when it ascribes to a Western king of Vārānashi (Benares) the possession of two big mirrors, one of which would shine 30, the other 10 li. At a conflagration of the palace, the bigger mirror came forth shining as bright as ever; whereas the smaller one was slightly injured, and had lost its brightness, though retaining its wonderful power of rendering poison harmless.

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[1] P'eï-wön-yün-fu, Chap. 89, p. 7.

[2] See Benjamin of Tudela, translated by B. Gerrans, p. 157; and for a Chinese repetition of the legend, my paper Die Länder des Islam nach chinesischen Quellen, pp. 52 et seq.

[3] Chap. 3, p. 7.

TO WARD OFF EVIL INFLUENCES.—The principal superstition connected with the use of mirrors is probably the belief that they will ward off evil influences; and many of the popular beliefs entertained at the present day with regard to mirrors of any kind, now chiefly the glass mirror, whether imported or of native manufacture, can be traced back many centuries before us, when none but metallic mirrors were to be had. The mirror has at all times been regarded as a charm against the attacks of those unseen evil spirits that beset the life of the Chinaman unless he do something to ward them off. We do not know how and when these superstitions arose; some of them may have been born with the Chinese nation itself. History abounds with instances proving their early existence; but it appears that nothing has contributed so much towards their development as the abuses made by the later Tauist schools of that mystic doctrine of the great philosopher Lau-tzï.

An early adherent of this school, the alchemist KO HUNG (fourth century A.D.), speaks, in his "Pau-p'o-tzï,"[2](70) of Tauist scholars being in the habit of hanging on their backs a bright metallic mirror, nine inches in diameter, so that sprites or evil spirits would not dare to come near them; for the mirror had the power to reflect the bodies of all invisible birds and beasts of evil influence which infested the air, and thus caused them to assume form. Another old passage is on record in the "Tung-ming-ki,"(71) a chronological account of wonderful events concerning the Court of the Emperor Wu-ti, supposed to date from the Han dynasty, according to which[1] a certain foreign country presented the Emperor in the Yüan-föng period (110–104 B.C.) with a mirror four feet wide, which would "reflect and make visible the otherwise imperceptible hidden forms of sprites,"—*ch‘ï-meï,*(72) the very word used in the "Tso-chuan"[2] for the "sprites and evil things" which the Emperor Shun wanted certain tribes of evil-doers to face in the uninhabited distant regions to which he had banished them. It quite goes with the spirit of the time that such a mirror comes from abroad so soon after the expeditions of the great discoverer Chang K‘ien, when the several countries of the Tarim Basin were being organized into Chinese colonies; for the much-dreaded desert of Eastern Turkistan, with all its dismal loneliness, was alive with unseen creatures known as *ch‘ï*-goblins(72) (imaginary beings like *mu-meï,* or "tree-goblins,"(73) in one of Li Lung-mien's mythological pictures).

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[1] Ko-chï-king-yüan, Chap. 56, p. 8.

[2] Ibid., Chap. 56, p. 8 b.

The "Tung-t‘ien-ts‘ing-lu"(8) describes a mirror called Hien-yüan-king,(74) from one of the names of the Emperor Huang-ti, which had the shape of a ball, and may be of the same kind as the one placed at the head of its illustrations in the "Si-ts‘ing-ku-kien," with an inscription by the Emperor K‘ien-lung. "Hien-yüan mirrors were hung up over the owner's bed, where they would ward off evil influences; for, though the hill-sprites (*shan-ts‘ing*(75)) and tree-goblins (*mu-meï*(73)) could render themselves invisible otherwise, they would become visible at once when seeing their images reflected in the mirror, to avoid which they would melt away and withdraw without doing any harm." Popular superstition has maintained this idea up to the present day; and this is the reason why mirrors, especially round ones, are hung up on bed-curtains. The mirror as a charm, sometimes forming the centre of a board on which the mystic diagrams known as *pa-kua* are engraved, is seen in all possible positions, and almost regularly above the entrance over houses facing a street running straight towards their front.[3]

MEDICAL.—Chang Ch‘ang,(76) a famous scholar and official, who died in 48 B.C., is reported to have got into his possession an old metallic mirror, more than a foot in diameter, which would light up his bedroom without his using either lamp or candle; moreover, after having got it, he never had a case of sickness.[1] In another case quoted from the "Sung-shï," an old mirror, three inches thick and twelve inches in diameter, had been discovered by a field-laborer, which had the power of making patients suffering from fever and ague feel cool.[1] Altogether, passages showing belief in the medical powers of mirrors are not rare. Several accounts are on record describing mirrors producing effects apparently similar to those of Röntgen rays, inasmuch as they would light up the "five viscera" (*wu-tsang*(77)) of the human body. The Emperor Shï-huang-ti is credited with having had such a mirror, which was called *chau-ku-pau*(78) ("the precious mirror that would illuminate the bones of the body").

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[1] Chap. 1, p. 2.

[2] LEGGE, p. 280.

[3] See DOOLITTLE, Social Life of the Chinese, Vol. II, pp. 313 and 316 et seq.

FURTHER SUPERSTITIONS REGARDING MIRRORS.—The superstitions of the present day fully confirm what we read about the supposed health and even life restoring powers of mirrors, as is shown in an illustration given by DOOLITTLE[2] of the treatment by Tauist priests of a dying patient, whose empty coat, hung up on a fresh bamboo-branch with a metallic mirror over it, is being carried out for a walk in order to cause the departed soul to return to it. The idea underlying this superstition is the same as that of the frightening-away of hill and tree goblins: the invisible soul, supposed to be hovering around in the vicinity, will become visible through the mirror magic, and, having nothing to fear from its familiar coat, may be induced to return, while evil spirits, anticipating punishment, will beat a hasty retreat. I do not wish to say much about the use of mirrors as an ingredient in medical prescriptions. It is well known that the Chinese have drawn almost every existing substance into their *materia medica;* we need not, therefore, be astonished to find old mirror-metal utilized in producing certain medical effects. Mirrors were, of course, never cast for that purpose; but, once rendered useless by breakage, the medical faculties in

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[1] Ko-chï-king-yüan, Chap. 56, p. 6.

[2] Social Life of the Chinese, Vol. 1, p. 150.

China put them to good account, and the "Pön-ts'au-kang-mu,"(9) that standard work on the medical man's natural history, has a whole chapter on the subject. The alleged beneficial effects of parts of metallic mirrors are based on some of the superstitions connected with mirrors generally, such as the warding-off of evil influences or the frightening-away of sprites and goblins. The older the relic, — which is taken internally, on being triturated, powdered, and mixed with other medicines, — the better; since the most ancient specimens, like the one taken over by the Emperor Kau-tsu of the Han dynasty from his predecessor Shï-huang-ti (220 B.C.), enjoyed particular reputation in their power to light up the inner parts of the human body, and thus facilitate diagnosis. T'au Hung-king (A.D. 451–536), in his time, recommended the knobs of ancient mirrors especially, on account of the large percentage of tin they contained. Such powdered old mirror-metal was used, and probably is at the present day, as an ingredient in prescriptions against irregularities in menstruation, when it is usually combined with that powerful specific *T'ang-kui.*[1]

The mirror in pictorial art is an attribute of lightning, just as thunder is personified as a winged man with a bird's face, — somewhat like the Indian Garuda, holding a chisel in one hand and a mallet in the other, — or as beating drums with the triquetrum or tomoye painted on them. Lightning, the companion of Thunder, appears as a woman, having one or two mirrors in her hands, or holding a mirror over her head, steadied by both hands.[2]

The ancient Chinese were fortunate in not having to handle that frail toilet-companion of our day. Metallic mirrors will not break so easily; but, once they do, the consequences are almost worse than with us. N. B. DENNYS says,[3] "Mirrors share in China the superstitious respect paid to their preservation at home. To break a looking-glass is in most parts of Europe deemed a very unlucky accident. 'When a looking-glass is broken, it is an omen that the party to whom it belongs will lose his best friend. Grosse tells us that breaking a looking-glass betokens a mortality in the family, commonly the master;'[1] and Bonaparte, having once broken the glass over Josephine's portrait, could not rest until a special courier had informed him of her safety. This belief exists in full force in China. To break a mirror augurs a separation from one's wife, by death or otherwise, and is only second in ominous portent to breaking an oil-jar." An old legend tells of a mirror owned by a loving couple (husband and wife) getting broken, when they were obliged to part. Each of them took one of the broken halves as a promise of faith; but when afterwards the wife broke her promise of fidelity, her part of the mirror changed into a magpie, which flew to her husband to tell him about it. This is stated to be the origin of the practice of representing magpies on the backs of metallic mirrors.[2]

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[1] Pön-ts'au-kang-mu, Chap. 8, pp. 30–32.

[2] DOOLITTLE, Social Life of the Chinese, Vol. II, p. 301.

[3] The Folklore of China, p. 35.

Mirrors are often credited with *prophetic powers,* like that of Yin Chung-wön,(80) who was implicated in a conspiracy and beheaded as a rebel in A.D. 407. His biographer[3] says that a few days before his death he made the ghastly discovery, that, whenever he tried to look into his mirror, he saw all but his head. Besides this instance, the "T'ien-chung-ki"[4] places together quite a number of cases, quoted from historical records, in which a man destined to lose his head was thus forewarned by his toilet-mirror.

CAUSING BIRDS TO DANCE AND SING.—The "I-yüan,"(81) a work of the fifth century A.D., says that pheasants like their own plumage, and begin to dance when they see their image in the water. In the beginning of the third century A.D., some southern country had sent such a bird to Ts'au Ts'au, the originator of the Weï dynasty, when Kung-tzï Tsang-shu (?) ordered a big mirror to be placed before it. The bird, seeing its image, began to dance, and would not stop until it dropped dead from exhaustion. Another poetical legend refers to a king of Ki-pin (northwestern India), who tried in vain to get his pet bird (here called *luan,* a female phœnix) to make its voice heard, when his consort remarked, "I hear that these birds will only sing when they see their mates. Why not hang up a mirror to let it see its own image?" The king did as she suggested, when the phœnix saw its image in the mirror, and began to sing in a most vigorous strain.[1]

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[1] Pop. Antiq., Vol. III, p. 170.

[2] Shön-i-king,(79) quoted in T'ien-chung-ki, Chap. 49, p. 35 b.

[3] Tsin-shu, Chap. 99, p. 23 b.

[4] Chap. 49, p. 36.

INSCRIPTIONS.

Some mirrors contain inscriptions. Of these, a few contain the date of manufacture distinctly stated; others allow of the fixing of a period of manufacture by the statement of incidental facts, or by the style of the characters used, or that of the composition in which it is drawn up. Certain formulas were peculiar to certain times.

Thus the inscriptions containing the words *shang-fang* (82) are generally referred to the Han dynasty, the *shang-fang* being a factory of metal-works for the exclusive use of the Imperial Court under the Ts'in and Han dynasties. Inscriptions may occur in any of the concentric sections, where such an arrangement prevails, short inscriptions being usually formed nearer the centre, very long ones near or on the marginal section. The grape-mirrors ascribed to the Han dynasty have no inscriptions at all.

The oldest legends would be those ascribed to Wu-wang (1122–1116 B.C.) in the "T'u-shu-tsi-ch'öng,"[2] the one of which says, "Think of what is behind you, while seeing what is before you;"(83) the other, "By having ourselves reflected in a mirror, we see a face; by having ourselves reflected in mankind, we see the future [literally, 'good and bad luck']." (84) The first inscription is quoted from the "Chou-li" in the Ming encyclopædia "T'ien-chung-ki,"[3] and I have not seen it in the original context. On the whole, inscriptions are more frequent, and also more lengthy, in later periods.

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[1] Yüan-kien-leï-han, Chap. 380, p. 18.

[2] Chap. 226, i-wön, p. 1.

[3] Chap. 49, p. 31.

ORNAMENTS.

It must strike every student of Chinese art that the decoration of mirrors is quite different in style from what we find on the sacrificial vases and other vessels of the Chou dynasty. This may be due to several causes. In the first place, the ornamentation of mirrors appears to have been a branch of art which did not begin to flourish before the period of foreign influences which set in after the return of General Chang K'ien from his celebrated expedition to western Turkistan and Bactria; for, although we possess ample evidence of metallic mirrors, highly finished in workmanship as far as the reflecting surface is concerned, having been manufactured for domestic and ritual uses during the Chou dynasty, I have not come across any instances in which the ornamentation on the backs of mirrors is referred to during this period. This, in connection with the fact that no specimens have been preserved to later generations, seems to suggest that Chou mirrors either had no ornaments at all, or that the designs on them did not impress posterity as sufficiently artistic to preserve them in their collections, or to write about them in their books. According to native literature, certain mirrors must have existed formerly which were ascribed to the Ts'in dynasty (220–206 B.C.). These, as mentioned in the "Tung-t'ien-ts'ing-lu,"(8) had a surface like black varnish, apparently from age, and are distinctly described as having plain backs (*kuang-peï*(85)), and no ornament of any kind. In his classification of mirrors, the author gives this class the first place, clearly on account of their antiquity, and those bearing ornaments follow. Certainly, if mirrors had ornaments before the Han, none have been described as forming part of the great collection of the twelfth century in the "Po-ku-t'u-lu." It is an open question whether some of the mirrors ascribed to the Han period may not have originated before the journeys of Chang K'ien (126 B.C.). The Han period extends from 206 B.C. to A.D. 221, and we generally speak of Eastern and Western Han from a dynastic point of view. As for applying to cultural development of any kind the opening-up of western Asia to the Chinese horizon after the return of General Chang K'ien, followed by the introduction of hundreds of things, ideas, and methods previously unknown in China, I would prefer to divide the Han period, as indeed the entire Chinese civilization, into "pre-changkienic" and "post-changkienic;" for Chang K'ien opened up a new world to the Chinese, which affected their cultural life even more than the discovery of America affected that of Europe. As for mirrors, I would not hesitate for a moment to say that the so-called "grape-mirrors," on account of their unmistakably Hellenistic character, and the well-known fact of the grape having been first brought to China by Chang K'ien, cannot possibly be pre-changkienic; but there are other kinds among the Han specimens which show much less of the Hellenistic spirit in their ornamentation, with the exception perhaps of its arrangement in concentric sections; and the question still to be answered is, whether these are indigenous creations of Chinese art, originating from the time when Western influences were excluded, or whether they are mixtures of the two kinds of influences. I am inclined to assume the second alternative. In either case, the subjects represented in their ornament are quite different from those of the sacrificial vessels, or indeed anything we have left to us of the antiquities of the Chou dynasty. The many Han mirrors, apart from those I have tried to explain as having been copied or imitated from Bactrian or other West Asiatic prototypes, represent not only a new style of art, but also a new folk-lore. In order to further this inquiry, it becomes necessary to analyze their ornaments, with the assistance of what Chinese art critics have said about them, and to endeavor to trace the different representations appearing on them in Chinese literature. In doing this we shall have to bear in mind that great cultural changes have taken place in China since the time when the sacrificial vessels of the Chou dynasty were made. These were connected with the time-honored cult of the Chou, and sanctioned by Confucius and his school, who are responsible for almost everything we know about the spiritual life of the nation down to Confucius' own times. Had not the history of China as now known to us been entirely in the hands of Confucianists until then, who knows in how different a light it would appear to us? The conservative spirit of Confucianism was broken by currents of cultural development which constituted a foreign element in the orthodox tradition; and we may through the history of the boundary-states, especially that of Chau, Ts'in, and Ch'u, trace a gradual leaning towards elements not originally Chinese. As in philosophy powerful opponents to the Confucian school arose, so the popular views as expressed in folk-lore gradually gained the upper hand; and when the King of Ts'in was firmly seated on the throne of China as Shï-huang-ti, its " First Emperor," the victory of the anti-Confucian element ended with the absolute suppression of Confucian literature and Confucian art. The foreign element in civilization and art, which may have been dormant in the nation for centuries without being sanctioned by its Confucian leaders, then had time to develop, and began to take shape in the ornamental art after its emancipation from the old traditional styles. The time which follows the Ts'in dynasty may therefore be looked upon as a period of foreign influences in several senses. The boundary population had commenced to amalgamate with Huns and other Tartars in the north and northwest, and with the *Man* barbarians in the south; and to this was added that host of cultural novelties imported from western Asia by that great collector of curiosities from distant lands, the Emperor Wu-ti.

With these yet unexplored problems before us, I shall now give a few instances of what the ornaments of the classical mirror art consist of.

The centre invariably consists of the "knob," either plain or representing an animal (bear or lion). The latter appears to be confined to the so-called "grape-mirrors" (*p'u-t'au-kien*), which originated during the Han period under the influence of West Asiatic models. They were imitated during the T'ang dynasty; but where the knob appears in the shape of an animal at this time, the remainder of the ornamentation will be found to be sufficiently different in style to distinguish them from the grape-mirrors of the Han. The plain knob may either serve merely the one purpose of fastening a cord, or it may appear to have been brought into correlation with the surrounding ornaments. This is particularly the case under the Han with some of the class of mirrors containing the water-chestnut ornament in the centre. In T'ang mirrors, where the arabesque element prevails, the knob may take the place of a conventionalized chrysanthemum, the prototype of the Japanese imperial badge, or some such flower.

The majority of the Han mirrors show their ornamental part to be divided into a number of concentric sections. Grape-mirrors usually have three such sections, — central, intermediate, and marginal; and in other classes of the Han period, where there is a large number of sections, these also may be grouped in the same way. In the mirrors of the T'ang dynasty we find a tendency to abandon this arrangement, inasmuch as cases in which ornaments are enclosed in clearly defined concentric circular lines are rare, as compared to those of the Han period.

The ornaments found on existing specimens and on the various illustrations preserved in Chinese literature may be divided into such as can be clearly identified, and such as cannot, there being some doubt as to what they represent. In the former class we have to distinguish again between our own interpretation, the Western students', and that of the Chinese art critics, on whose judgment we depend in many cases, though not always. Thus I do not hesitate to declare the animal figure forming the knob on quite a number of grape-mirrors of the Han dynasty to be a bear, whereas some Chinese critics call it *hai-ma*(86) (literally, "horse of the sea," "foreign horse"), while others explain it as "a lion" and even "the wild horse" (*ye-ma*(86)). If the ornaments of these grape-mirrors have been copied from models imported from Bactria under the Emperor Wu-ti, I prefer to call it the bear, because this very animal is found in one of those rare relics we possess of Bactrian antiquities, on an ancient silver patera of debased Greek art, formerly in the possession of the Prince of Badakhshan, and now in the India Museum of London.[1] Cases in which the interpretation of foreign and native critics is bound to differ are, however, exceptional; and we may, as a rule, follow the

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[1] Reproduced in YULE's Marco Polo, Vol. 1, p. 167, 2d ed. (cf. the Chinese illustrations of grape mirrors in my paper Über fremde Einflüsse, etc.).

Chinese critics in deciding what the different ornaments were intended by the artist to represent. Having ascertained what an ornament represents (a certain plant, animal, mineral, mythological or symbolic figure), we are confronted with the question, What does it mean? In this respect we can only follow the interpretation of Chinese critics, though this should in many cases be understood *cum grano salis.* I do not intend in this place to exhaust that very large number of ornaments appearing on the metallic mirrors now known to us, or even to make an attempt at their classification; but I shall just mention a few of the mysterious objects recognizable in the relief-work of existing specimens or in the illustrations found in Chinese books. The latter are, as a rule, easier to deal with than the originals, especially if the letterpress accompanying them assists us with plausible clews.

The twelve horary symbols, denoting either the twelve double hours into which the day is divided, or the twelve months of the year, or the twelve years of the duodenary cycle adopted by certain Central Asiatic nations, such as the Turks,[1] appear either in the shape of certain cyclical characters denoting them, the so-called "twelve branches,"[2] or as the twelve animals representing them, in the following order: Rat, Ox, Tiger, Hare, Dragon, Serpent, Horse, Goat, Monkey, Cock, Dog, Pig. The Turks of the seventh and eighth centuries, as we have learned since the discovery of the Old-Turkish inscriptions of Mongolia, designated their years by the Turkish names of these animals. Klaproth first drew attention to a metallic mirror containing representations of these "twelve animals" and an unmistakable date showing that the animals could stand in lieu of the Chinese character-symbols (twelve branches) as early as A.D. 622.

I have pointed out a metallic mirror,[3] ascribed by native art critics to the Han dynasty, and bearing all the characteristics of the so-called grape-mirrors in the Hellenistic style of the drawing; but some of my friends have remarked that the use of animal figures to represent the "twelve branches" could not be shown to have existed before the T'ang dynasty. Against this I wish to point out that the first mention in Chinese literature of the animal cycle is of a very much earlier date. It occurs, with an elaborate discussion on their mystical symbolism, in the philosophical work "Lun Höng"[1] by WANG CH'UNG,[2](88) for which reason the *shï-ïr-shou,*(89) i.e., the "twelve animals," are also repeatedly mentioned in the "Hou-han-shu." The fact of *Ssï-ma Ts'ien,* who died about 85 B.C., speaking at length in his "Shï-ki" about the twelve cyclical signs without saying anything about the animals representing them, has led me to assume that the animal cycle must have been introduced into China during the 175 years which elapsed between the deaths of Ssï-ma Ts'ien and Wang Ch'ung, i.e., between about B.C. 85 and A.D. 90.

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[1] See my notes on the Old-Turkish Calendar in Nachworte zur Inschrift des Tonjukuk, pp. 116–128.

[2] *Shï-ïr-chï*(87) (see the Chinese Dictionaries of Williams, p. 54, and Giles, p. 1383; or Mayers, The Chinese Reader's Manual, p. 351).

[3] Nachworte, pp. 120 and 121.

The "twelve animals" are one of the favorite designs we find on the mirrors both of the Han and T'ang dynasties. Combined with them we often see in an inner section four animal figures,—a tortoise fighting with a serpent wound around its body, on the opposite side a bird like a phœnix, and right and left two dragons slightly differing in shape; and between these two sections adorned with animals we often see a section containing the eight mystic symbols known as *pa-kua.* I am at a loss how to explain the four animals, which, in some of the names invented for mirrors exhibiting them, are styled "the four supernatural creatures" (*ssï-shön,* or *ssï-ling*(90)), though I do not even venture to say that these names are meant to apply to the "four animals." A long list of symbolic figures derived from the animal and vegetable kingdom and of miscellaneous other objects might be derived from the mirrors now known to us; but, as we know so little of the interpretation of their meaning, I shall enter upon this subject only so far as seems necessary to explain a few mirrors in the Musée Guimet.

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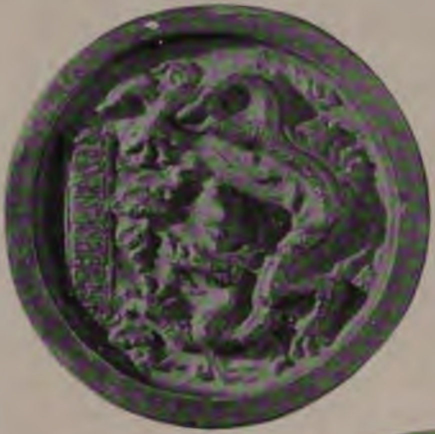
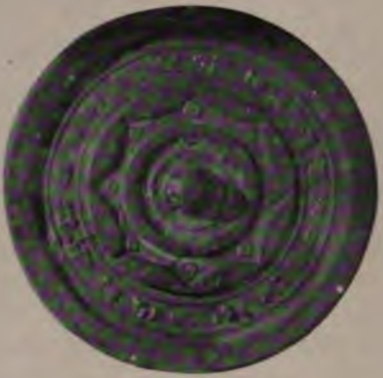
[1] Chap. 3, pp. 23–24, in the Han-weï-ts'ung-shu collection of reprints.

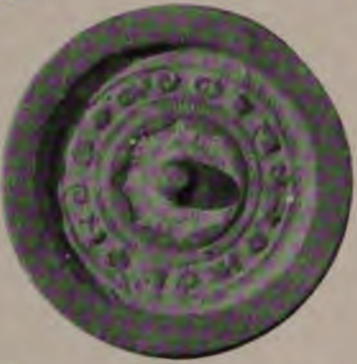
[2] A.D. 19–90, according to MAYERS, Manual, p. 239. He died a septuagenarian in the Yung-yüan period, A.D. 89–104 (Hou-han-shu, Chap. 79, p. 1).



1



4



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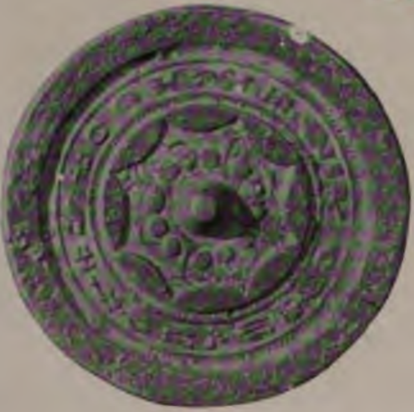
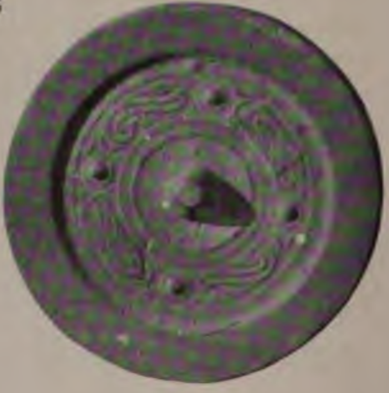


2



3

CHINESE METALLIC MIRRORS, MUSÉE GUIMET, PARIS.

Notes on some Ancient Specimens in the Musée Guimet.

An Alleged Ancient Dragon Mirror.

Plate xv, Fig. 1. Diameter, 11.25 cm.; weight, 351 grams. Ornamented with a dragon, head downwards, playing in the clouds, the latter represented by *ling-chï* ornaments[1] raised in relief above a flat bottom, on which the water-pattern (*shui-wön*(91)) has been faintly marked. The dragon (*lung*(92)) is represented in its modern shape in high relief, and possesses all the attributes we are accustomed to see nowadays on the representations of the dragon: such as the five claws of its feet, clearly distinguishable; the body of an alligator, or some such reptile, covered with scales; protruding eyes; horns; antennæ; and beard. An inscription in seal characters appears on a framed tablet with an ornamental roof, and standing on a base resembling a padma-like flower. The entire back is surrounded by a raised plain flat margin with sharp edges.

It appears that a companion to this mirror was contained in the collection of the Emperor K'ien-lung, inasmuch as the "Si-ts'ing-ku-kien"[2] (4) contains an illustration which leaves little doubt as to its being of the same class, in all its details, as the one now belonging to the Musée Guimet. It is described under the name *Han Yün-lung-kien*(93) (i.e., "The Cloud-and-Dragon Mirror of the Han Dynasty").[3] The description of "The Cloud-and-Dragon Mirror" in the "Si-ts'ing-ku-kien," says, "Diameter, 3.4 Chinese inches; weight, 10 ounces. On the back is represented the shape of a dragon frisking in the Pond of Heaven (*t'ien-chï*(94)), the drawing being interspersed with patches of clouds (*to-yün*(95)). Plain margin; plain knob (*pi*,(96) literally, 'nose'). Of the inscription, five characters are readable."(97) The five characters which the authors of the "Si-tsʻing-ku-kien" say were discernible in the specimen belonging to the Kʻien-lung Museum are stated by them to have been . . . *ki* . . . *chöng-yüe jï tsau*(98) (i.e., ". . . happiness . . . manufactured in the days of the first moon").

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[1] The *ling-chï* is a kind of fungus looked upon as an emblem of longevity, possibly *Agaricus noctilucens*, Lév. (see my Scraps from a Collector's Note-Book, New York, 1905, p. 78).

[2] Chap. 40, p. 35.

[3] Every work of art described in any of the standard works containing illustrations is given a name by the art historians. This name is usually headed by the character denoting the dynasty during which, in the opinion of the native authorities, the work of art referred to has originated. We learn thus from the title given to the companion mirror in the K'ien-lung collection that the editors of the Si-ts'ing-ku-kien consider it a work of the Han dynasty, whose rule extended from 206 B.C. to A.D. 220. The name itself usually contains an allusion to the chief ornament or some characteristic inscription found on its surface, and always describes the class of work to which, according to Chinese terminology, it belongs, — whether tripod (*ting*), water-basin (*si*), mirror (*kien*), etc.

In the specimen now belonging to the Musée Guimet the inscription seems to have been somewhat better preserved. I can make out the last four characters to be identical with those on the specimen of the Kʻien-lung Museum, but the reading *ki* ("happiness") does not seem to be justified by what appears on the cast now before me. I am rather under the impression that the characters preceding *chöng* are intended to mean *ĭr-shĭ-ĭr-nien*(99) (i.e., "in the twenty-second year"). I must admit that the shape here given to *nien* ("year") is very unusual, and that its palæographic explanation is not based on parallels easily procurable. What I make out on the cast is a hieroglyphic which I cannot explain with confidence. The nearest equivalent in form which I have been able to discover will be found in the well-known "Corpus Inscriptionum," published in 1804 at Yang-chou by the former Viceroy of Canton, Yüan Yüan, the "Chung-ting-i-kʻi-kʻuan-shï,"[1] (100) where, in an inscription of the year 24 B.C., the character *nien* in the date appears in a somewhat similar shape. I regret not being able to decipher the first two characters, in spite of every possible attempt to discover parallels among the inscriptions of the period. If others should be more lucky, the discovery of a date, if a date is at all contained in the inscription, will be of great importance. It must strike every one familiar with the development of the ornamental representation of the dragon that in this case all the modern attributes (clearly-defined claws, rolling eyes, antennæ, etc.) are given to this animal, which, in stone sculptures originating as late as the second century A.D., are marked in a much more primitive manner. I refer to Plates XXXI and XXXIII in CHAVANNES' work,[2] which may be said to represent the style of dragon followed towards the close of the Han dynasty. However, the native critics of the "Si-tsʻing-ku-kien," whose judgment certainly deserves consideration, ascribe the companion mirror referred to, not to the Tʻang, where it would not call for doubt of any kind, but to the Han dynasty. The padma-ornament at the base of the frame containing the inscription is clearly of Buddhist origin, and seems to exclude the former Han dynasty as the time of origin. Moreover, the manner in which the dragon is drawn, especially the twisting of its tail around its right hind-leg, appears quite similar on three dragon mirrors of the T'ang dynasty,[1] though these T'ang dragons show only three or four claws, whereas the alleged Han dragon shows five.

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[1] Chap. 9, p. 25.

[2] La sculpture sur pierre en Chine.

MAGIC MIRRORS.

Plate xv, Fig. 2: diameter, 9.75 cm.; weight, 125 grams. Fig. 3: diameter, 9 cm.; weight, 99 grams; rather thicker than the average; the cast shows a slight break on the back. Fig. 4: diameter, 8.75 cm.; weight, 119 grams; the cast appears broken on the back. Fig. 5: diameter, 7.75 cm.; weight, 89 grams.

The class of mirror to which the four specimens shown in Plate xv, Figs. 2–5, belong, is described in the "Si-ts'ing-ku-kien."[2] The ornamental part is plain rather than artistic, the cause for which I believe lies in the use to which these mirrors were put. They were all, I believe, meant to serve as "magic mirrors," the well-known *t'ou-kuang-kien,*(101) first described by SHÖN KUA in his "Möng-k'i-pi-t'an." (57) Since the first half of the nineteenth century, magic mirrors have commenced to attract the attention of European savants, and the literature now on record[4] throws considerable light on the subject. I refer in the first instance to the justly celebrated memoir on "Miroirs magiques," laid before the Académie des sciences by the late Professor STANISLAS JULIEN.[5] For a review of the various experiments since made and placed on record, I would refer to the paper on the subject read before the Berlin Anthropological Society in November, 1898, by the late Dr. F. JAGOR.[6]

There can be scarcely any doubt that the Chinese were the inventors of these magic mirrors. They have probably been known as curiosities ever since the Han dynasty, when Shön Kua, in his cyclopædia, drew renewed attention to them, without being able to explain their manufacture. The poet Ma Chï-ki of the Kin dynasty,(102) whose name seems to have been misunderstood by Julien, and who wrote the poem "T'ou-kuang-king-shï"(103) ("Ode on a Magic Mirror"), is distinctly stated not to have been able to explain the principle underlying the phenomenon.(104) Ma Chï-ki, whose biography is preserved in the "History of the Kin Dynasty,"[8] died in A.D. 1232 at the age of fifty-nine. Wu

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[1] Po-ku-t'u-lu, Chap. 30, pp. 4 and 5.

[2] Chap. 39, pp. 11–24.

[3] Chap. 19, p. 4.

[4] See pp. 211, 212, Nos. 1–8 and 12.

[5] Published in Comptes rendus, Vol. XXIV (1847), pp. 999 et seq.

[6] See p. 212, No. 12.

[7] Le poète Kin-ma les a célébrés en vers, p. 1000.

[8] Kin-shï, Chap. 126, pp. 10 et seq.

Tzï-hang,(105) who is stated to have furnished the first explanation of the phenomenon, is described as having lived during the Yüan dynasty (1260–1368). The discovery of Wu Tzï-hang's theory must for this reason belong to the thirteenth or fourteenth century. I have not been able to find out who Wu Tzï-hang was, nor does it appear that any independent works now exist under his name in the Imperial Library of Peking. The work from which Julien's translation is derived is the "Yü-t‘ung-sü-lu,"(106)— a collection of miscellanies published in sixty-five chapters by Ho Möng-ch‘un,[1](107) who graduated in 1493 and died in 1527,[2] leaving behind him a few works, including a commentary on the "Family Sayings of Confucius."[3](108)

The passage quoted from the "Yü-t‘ung-sü-lu" in the "Ko-chï-king-yüan"[4] leaves no doubt whatever as to the meaning of the term *t‘ou-kuang.*(109) In modern Chinese, *t‘ou-kuang* may be looked upon as the technical term for the "transparency of glass or crystal." In the Chinese version of the "List of Lights, Buoys and Beacons, published by order of the Inspector General of Customs," the term "dioptric lens" is rendered by *t‘ou-king;*(110) e.g., in the description of Gützlaff Light No. 47 of the list, published in January, 1905. Williams[5] renders *t‘ou-kuang* by "a kind of skylight." In the older literature, however, the meaning of the term is the one described by Shön Kua, in whose account it is looked upon as a ἅπαξ λεγόμενον by an author of the Southern Sung dynasty (thirteenth century), Chou Mi,(111) in his work "K‘ui-sin-tsa-shï."[6](112) Chou Mi says that "the theory of the magic mirrors has something that cannot be understood," and that "among the records of former generations it is only the 'Pi-t‘an' of Shön Ts‘un-chung (i.e., Shön Kua) which touches the subject."[7](113) We may infer from this remark, that, although magic mirrors were known in ancient times, the literature on record at the time when Chou Mi wrote (thirteenth century) contains no descriptive notice of them except the account of Shön Kua as translated by Julien. This explains somewhat the absence in the "Po-ku-t‘u-lu" of every allusion to certain classes of mirrors possessing the power of reflecting the shadows of ornaments; and we may take it for granted, that, when this work was published (A.D. 1107), the magic mirrors preserved among the treasures of the Emperor Hui-tsung's Museum were not known to possess any but the qualities of ordinary mirrors, because they were never suspected in this respect. A still more palpable reason for Wang Fu's silence on the subject may be that the collection he describes contained no specimens of this class. Since his time, it appears, new discoveries have been made; and among these the mirrors referred to as being described in the "Si-ts'ing-ku-kien," which closely resemble certain specimens in the Guimet collection as regards both ornamentation and inscriptions, are uniformly described as *t'ou-kuang,*(109) i.e., magic mirrors.

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[1] See the Great Catalogue of the Imperial Library, Chap. 127, p. 16.

[2] Ming-shï, Chap. 191, pp. 13 and 19.

[3] The Great Catalogue, Chap. 95, p. 1.

[4] Chap. 56, p. 6.

[5] Syllab. Dict., p. 877.

[6] Compare the Great Catalogue, Chap. 141, p. 34, against Wylie, Notes on Chinese Literature, p. 159, who places the work in the fourteenth century.

[7] Sü-tsi, Chap. 2, p. 28; cf. also P‘eï-wön-yün-fu, Chap. 22 A, p. 90.

The analogies which lead me to believe that the four mirrors of the Musée Guimet shown in Figs. 2–5 of Plate XV were originally intended to be magic mirrors, are based on ornamentation as well as inscription. The characteristic feature of their ornament is an octangular star occupying the centre of the disk. In the specimen seen in Fig. 3 the knob is surrounded by twelve globules, as in the illustrations on pp. 13, 19, 21, and 23, Chap. 39, of the "Si-ts'ing-ku-kien," called "the twelve nipples" (*shï-ïr ju*(114)) in the Chinese description, where the octangular star is explained as the "blossom of the water-chestnut" (*ling-hua*(115)). Chinese art critics are very cautious, refraining from throwing out hints as to what an ornament may possibly mean unless able to speak with a certain amount of confidence. An examination of the most ancient mirrors of the Han dynasty, as reproduced in the "Po-ku-t'u-lu,"[1] however, seems to suggest the idea of "the twelve nipples" being intended to indicate the "twelve horary characters" (*shï-ïr ch'ön*(116)) marking the divisions of the day. The "blossom of the water-chestnut" is well known in poetry; but, more than the flower itself, its representation on metallic mirrors has excited the imagination of Chinese bards, in witness whereof I would refer the sinological reader to a number of passages quoted in the "Pien-tzï-leï-pien,"[2](18) The most curious to us is the quotation from a poet, SIE FÖNG,(117) who, according to his biography,[3] flourished during the ninth century, and who says in his poetical account of a metallic mirror found by a ploughman in the fields, *"The surface of the mirror having been polished for fully a month, one could in the [reflected] sunshine gradually discover the spread-out blossom of a water-chestnut."*[4] (118)

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[1] Chap. 28, pp. 8–10 *et passim*.

[2] Chap. 185, pp. 60 et seq., *sub verbo ling-hua.*(115)

[3] T'ang-shu, Chap. 203, p. 17.

[4] T'u-shu-tsi-ch'öng, Sect. 32, Chap. 227, i-wön II, p. 6.

I am very much inclined to look upon this passage as an early mention of a magic mirror; for, since the image became visible only after long-continued careful polishing (*mo-jung,* "made to shine by grinding"), the gradual appearance of an image "in the sun" cannot refer to the ornament on the back of the mirror, but to its counterpart on its smooth surface. I would here suggest that a hint might be taken from the procedure resorted to in this one instance during the ninth century, and an attempt be made to polish the several "water-chestnut-blossom mirrors"[1] (*ling-hua-king*(119)) now in the Musée Guimet as a test of their power to reflect ornaments. The specimens in the K‘ien-lung collection, described in the "Si-ts‘ing-ku-kien" as *t‘ou-kuang*(109) (i.e., possessing the power of magic mirrors), cannot possibly have preserved the original smoothness of their front surface since the time of the Han dynasty, and that they are called *t‘ou-kuang* can only be due to their having been repolished. If this be done with the necessary care, the experiment may succeed. Should it fail, however, this need not become an argument against the conclusions we may derive from the native literature as to the original meaning of the mirrors showing this kind of ornament: for it appears that counterfeits — mirrors resembling the true "water-chestnut-blossom, or magic mirror," in all respects, without possessing the power of reflecting the ornament — exist in great numbers; at least, so I am led to believe from the description of a specimen styled *chau-sin-king*(120) (i.e., The Mirror reflecting the Heart") in the "Kin-shï-so," on fol. 54 B of the Mirror volume. The inscription on this mirror contains sixteen characters clearly distinguishable.(121) It seems a characteristic feature of many of the inscriptions found on these magic mirrors, that, even apart from any apparent mutilation to which they may have been exposed through the effects of time, it is difficult to make sense of what we read on the back. In the above-mentioned legend, for instance, the character *ïr*(122) seems to be a mere ornamental expletive, inserted for the purpose of puzzling the reader. I suspect that in this legend, as well as in others, certain characters were purposely not reflected through the mirror; possibly certain characters were but incompletely reflected, or slightly modified, in the shadow; all this being calculated to increase the surprise of the reader, who may have tried in vain to make sense of the inscription visible on the back, and who finds that its reading is easier than he thought, after he has seen its shadow reflected on a wall. The brothers Föng, editors of the "Kin-shï-so," accompany the legend — which they reproduce with the above character as it appears on the back of the mirrors — with the following remark: "Of this class, counterfeits are very frequent [the legends of which] cannot be made into sentences; but the legend of this mirror is still perspicuous, for which reason we have here recorded it."(123)

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[1] The name by which the poets in the Pien-tzï-leï-pien call them.

The character *ïr*(122) ("and," the copulative particle), in similar inscriptions reproduced in the "Si-ts'ing-ku-kien,"[1] is explained by *t'ien*(124) ("heaven, day"). It seems quite possible that the difficulties now standing in the way of deciphering the inscriptions on the mirrors shown on Plate xv, Figs. 2–5, will disappear, if we succeed in obtaining an image of the shadow they produce on a white wall.

The magic mirrors brought to Europe from Japan usually reflect a facsimile of the back ornament, it is true; but the existence of mirrors like the one in the possession of Dr. MILCHNER of Berlin, and exhibited at the April meeting of the Berlin Anthropological Society in 1898,[2] shows that this need not necessarily be the case. The mirror referred to shows on the back the Chinese characters given in No. 125 (p. 255), whereas the shadow thrown on the wall reveals the image of a human figure surrounded by an aureola from which emanates a network of luminous rays. The inscription was rightly explained by Professor F. W. K. MÜLLER of the Berlin Ethnographical Museum as the Chinese transcription of the Buddhist incantation "Namo Amitābha Buddha;" and the human figure represented by the shadow was proved by the same gentleman to be identical in shape with certain representations of this very deity found among the pictorial treasures of his museum.[3]

It must strike every observer that some of the mirrors coming, according to the arguments I have tried to derive from Chinese literature, under the category of "magic mirrors," are rather thicker than the average; and this seems to favor my suspicion as to the reflected image being somewhat different from the one seen on the back, chiefly as regards the inscription. What the general sense of these inscriptions may be, we are perhaps allowed to guess from the legends of a series of mirrors discussed in the "Kin-shï-so"[4] under the title *Jï-kuang-king of the Han Dynasty,*(126) which, owing to the peculiarity of their back ornament as well as to their inscriptions, I strongly suspect to be "magic mirrors." The inscription on one of them says, for instance, ***kien jï-tchï kuang T'ien-hia ta-ming***(127) (i.e., "When the light of day is visible, the world is full of brightness").

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[1] Chap. 39, pp. 13, 15, 17, and 19.

[2] For illustrations see Verhandlungen, 1898, pp. 199 and 200.

[3] See Verhandlungen, 1898, pp. 549 et seq.

[4] See fols. 45–48.

THE TS‘ING KAI MIRROR.

Plate XVI, Fig. 1: diameter, 9.75 cm.; weight, 348 grams. The knob in the centre of the back is uncommonly large, and forms a perforated button fully 1.5 cm. in diameter and 0.75 cm. in height. The heads of two monsters are glaring at each other, possessing all the attributes of dragon-heads (rolling eyes, horns, tongue, antennæ, with the peculiar shape of a camel's head), but being connected with the bodies of reptiles covered by pustules instead of scales. The abdomen of the monster on the right hand stands out in exaggerated relief, no claws being distinguishable; whereas the animal on the left hand appears in dislocated portions, which it requires some imagination to unite. At the bottom of the disk, opposite the two dragon-heads, we find a small naked human figure, and the very clumsy shape of some quadruped, probably meant to be a deer, or a *ki-lin*. The margin of the disk shows a series of patterns such as may be found among the mirrors of the Han dynasty. The characters *Ts‘ing Kai*(128) appear close to the neck of the monster on the left hand. This we must assume to have been the name of the first owner of the mirror. The same name occurs on the back of a mirror exhibiting similar ornaments (two dragon-heads, with the disjointed portions of the body of a doubtful reptile) and reproduced in the "Po-ku-t‘u-lu." [1] The inscription of this mirror leaves no doubt as to the two characters *Ts‘ing Kai* being the name of a person, since it begins with the words *Ts‘ing Kai tso king*(129) (i.e., "A Mirror made by Ts‘ing Kai"), this being the usual formula denoting the maker or first owner of mirrors in quite a number of ancient legends still on record. The *Ts‘ing Kai* mirror of the "Po-ku-t‘u-lu" contains an inscription of thirty-four characters,(130) from which we are led to conclude that it was made at a time when "the four barbarians (the foreign nations on the boundary of China) had just been brought to subjection, and that in consequence thereof the government as well as the people enjoyed peace; that, the Hu-lu(131) (the Tartars in the north, especially the Hiung-nu) being extinguished, the nation could enjoy the benefit of good harvests," etc. The allusion to the Hiung-nu having been "extinguished" may refer either to the decapitation of Chï-chï Shan-yü in 36 B.C., and the complete submission of his rival, the Hu-han-ye Shan-yü, to Chinese rule, or the victory of the Chinese General Tou Hien over the so-called Northern Shan-yü in A.D. 91. [2] Various other occasions are, however, equally possible. I have not

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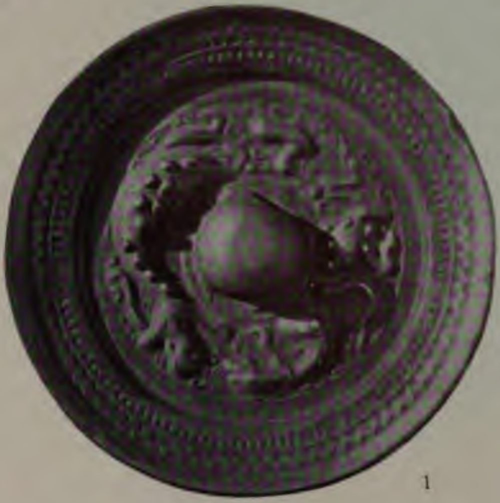
[1] Chap. 28, p. 32.

[2] See DE MAILLA, Histoire de la Chine, Vol. III, pp. 174 and 395.



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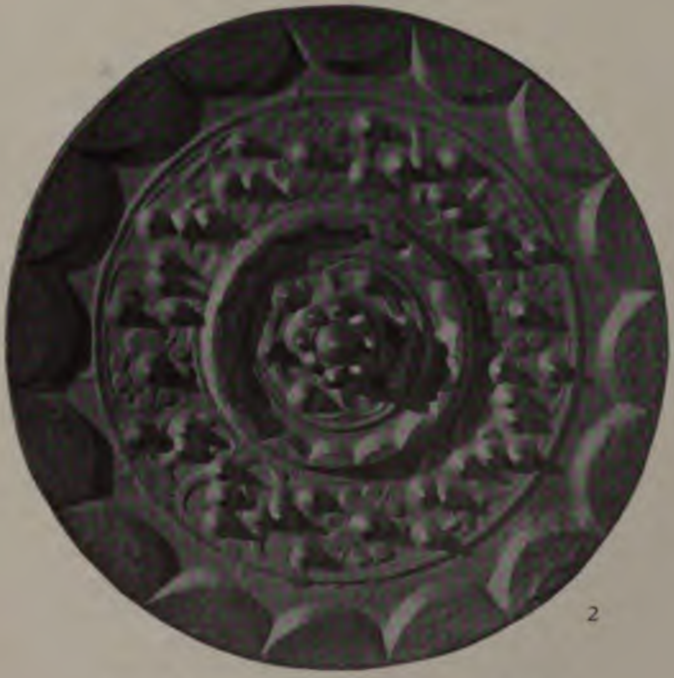

2

CHINESE METALLIC MIRRORS, MUSÉE GUIMET PARIS.

succeeded in discovering in Chinese history any particular year in which a series of decisive victories over any of the Tartar nations in the north or west of China is followed by an exceptionally good year as regards the crops of grain. If such a year were on record, it would probably not have escaped the attention of the Chinese art critics, who would have otherwise made use of this argument in fixing the period in which the mirrors containing the above or a similar inscription must have originated. All that the brothers Föng suggest in the " Kin-shï-so "[1] — where a large mirror is depicted containing an inscription similar to the one on the Ts'ing Kai mirror of the " Po-ku-t'u-lu," together with ornaments in the shape of two chariots drawn by four and six horses, and two winged Buddhas sitting on the characteristic padma-throne (*lien-t'ai*(132))— refers to the legend as one frequently found on works of the Han dynasty. The ornamentation reminds the native critic of the stone sculptures in the Wu-shï-shan tombs, which have been shown by M. CHAVANNES to belong to the second century A.D.; and the appearance of what must be looked upon as a Buddhist image proves that the mirror is not likely to have been made previous to the year A.D. 70, when Buddhism was probably first introduced into China, and probably a good deal later. The "Kin-shï-so"[2] contains three illustrations of mirrors with the owner's mark "Ts'ing Kai," two of them bearing inscriptions bespeaking good luck (the aversion of evil influences, profit in trade, a good career, and long life) to the owner and his offspring,(133) the third one being identical in all respects with the specimen now in the Musée Guimet. I have never come across any mention of a personage named Ts'ing Kai, and we shall probably not succeed in finding out who he was; but from the fact of a mirror with an inscription attributed to the Han dynasty, though probably the latter part of the Eastern Han (say, any time between A.D. 70 and 221), being described in the " Po-ku-t'u-lu " as belonging to an owner of the same name, we may form an idea as to the period to which it belongs.

The " Po-ku-t'u-lu " [3] contains an illustration of a mirror very similar to the Ts'ing Kai mirror of the Musée Guimet. The two monsters are similarly placed, the one on the right hand showing likewise an abdomen of exaggerated dimensions. The two characters *Ts'ing Kai*(128) appear in the same place behind the neck of the other monster; but the naked human figure is replaced by a quadruped which it seems difficult to identify; and the other small figure, adjoining the tail of the big-bellied monster, seems to be meant as a bird. The title given to this mirror by Wang Fu, the author of the " Po-ku-t‘u-lu," is *Han T‘o-lung kien,*(184) i.e., " Mirror [showing as ornaments the] T‘o [water-lizard, triton, iguana] and the Lung [dragon], of the Han Dynasty." It appears that by *t‘o-lung,* not two animals, but one animal is meant,— the " lizard-dragon," whatever that may be, — since we observe on fol. 20 of the Mirror volume of the " Kin-shï-so " the representation of *three* reptiles which the editors explain as " three *t‘o-lung.*"(185)

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[1] Vol. VI, fol. 21.

[2] Vol. VI, fol. 26.

[3] Chap. 29, p. 25.

THE NIPPLED MIRROR.

Plate XVI, Fig. 2: diameter, 15.66 cm.

Under the heading *Meï-ju-mön,*(186) i.e., the class of nippled (mirrors), the " Po-ku-t‘u-lu " [1] describes six mirrors, all belonging to the Han dynasty, two of which offer decided analogies with the specimen now in the Musée Guimet, more especially the one illustrated on p. 19. The mirror referred to is called *Han pai-ju-kien*(187) (" the mirror with a hundred nipples "). The ornament lies embedded in a star with sixteen points. A smaller sixteen-pointed star surrounds the centre. The interval between these two star-margins is occupied by a broad zone bordered by two concentric rings. The surface of the broad zone is divided into four equal parts by four rosettes with mammiform centres, each of the four divisions showing sixteen nipples (*ju*(188)), the greater number of which are connected by raised lines. The central ornament contains eight nipples besides some fancy ornaments surrounding the knob.

A comparison of the illustration in the " Po-ku-t‘u-lu " with the above mirror will show that the two represent the same class of work. The size appears to be identical, to start with, since the *Pai-ju-kien* of the " Po-ku-t‘u-lu " (p. 22) is described as measuring 5.8 Chinese inches in diameter. Since I have reason to believe that the inch of the Sung dynasty, in which the measurements of the " Po-ku-t‘u-lu " are given, is the equivalent of about 2.7 cm., the *Pai-ju-kien* must have measured just about 15.66 cm., like the one in the Musée Guimet. The weight of the one described in the " Po-ku-t‘u-lu " is 10.3 *liang,* or so many ounces, which need not, of course, agree with the equivalent of the modern ounces or taels. The ornament will be found to offer some slight variations. The four rosettes are replaced by four ornaments of a similar type (a central nipple surrounded by eight round leaves), and the number of nipples occupying the space between the four rosettes is reduced from sixteen to ten. The knob assumes the shape of a big mamma supported by eight smaller nipples, tapering conspicuously above all the remaining ornaments, and is surrounded by four smaller nipples.

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[1] Chap. 29, pp. 19–29.

In his explanation of the ornament, Wang Fu refers to two other classes of bronze work in which the "nipple" ornament may also be looked upon as the chief characteristic; viz., the various ancient bells of the *chung*(139) category,[1] and certain specimens of the libation-vessel called *i*.(140) Among the last-named class of vessels, the "Po-ku-t'u-lu"[2] contains the illustration of a specimen of the Chou dynasty styled *Pai-ju-i*(141) ("the *i* with a hundred, or innumerable, nipples"), the main surface of which shows, besides the fluted pattern (*chï-wön*(142)), clusters of thirty and twenty-four, four times repeated; in all, 216 nipples. Wang Fu remarks with regard to this ornament, "The nipple, as that by which man is nourished (as if a child is protected by being held in the claws) is represented on the vessel, in order to express the meaning of its use (affording) eternal protection."(143) This, it appears, is the meaning underlying, according to Wang Fu, the nipple ornament wherever it occurs. It may therefore be called the "symbol of nutrition." By far the greater part of all the ancient bells (*chung*), numerous illustrations of which will be found in Chapters 22–25, is distinguished by a series of three times three nipples, repeated four times; in all, thirty-six nipples. The nipple, with all its ornamental varieties, may therefore be called the "bell ornament" *par excellence*. The explanation given by Wang Fu of the application of its symbolism to the works on which it appears is somewhat far-fetched, it is true; and we can but place it on record such as it is. The nipple is represented on bells, he argues, because "the sound of music means nutrition to the ear;"(144) it occurs as an ornament on the libation-vessel referred to, because "the taste of wine means nutrition to the body."(145)

If we adopt Wang Fu's "nutrition" theory in trying to explain this mysterious ornament, the meaning of the nipples on the mirror shown in Plate XVI, Fig. 2, is the wish that its holders may be blessed with a life full of nutrition, both material and spiritual.

It is quite possible that at that comparatively late period (the Han dynasty), when the ornamentation of mirrors was probably created, the nipples seen on the ancient bells of the Chou dynasty were held to be chiefly ornamental. The standard description of ancient works, the

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[1] The ordinary temple bell (see "Bausteine," etc., T'oung Pao, Vol. VII, pp. 496 et seq.).

[2] Chap. 8, p. 26.

"Chou-li,"[1] does not distinctly state that they were made to appear for any other purpose, but the fact of their being mentioned in the main text of the "Chou-li" under the name of *meï*[2] (146) ("a wooden gag," rendered by "bouton" in Biot's French version), and not *ju*(138) ("nipple"), seems to indicate that their being compared to the nipple of a breast is an after-thought of later interpreters. I am not sufficiently versed in the theories underlying the manufacture of bells to speak with authority on this subject, but it seems that the nipples on ancient bells had something to do with tuning, or regulating, the sound of bells. This I am led to infer from a remark made in Wang Fu's description of two nippled bells,[3] where one Li Chau of the Sung dynasty(147) is said "to have held that nipples [on bells] were used to regulate the surplus sound, since sounding [a bell] without regulation results in jingling."(148) I do not pretend to produce the exact sense of this passage, since I possess no technical knowledge of bell-founding.

If regulating sound, or tuning, be the real purpose for which the nipple ornament has been invented in the case of bells, the question arises, What does it mean in connection with the sacrificial vessel above mentioned, called *Pai-ju-i,*(141) and the various metallic mirrors distinguished by this "symbol of nutrition"? If any of the originals adorned with "nipples" should have a clear, bell-like ring when struck with a clapper, I would suggest that it might have served as a musical instrument, apart from the category indicated by its ornamental shape.

NOTE. — Since compiling these notes, I have received Professor Éd. Chavannes' paper "Le cycle turc des douze animaux," published in the "T'oung Pao," Série II, Vol. VII (Leiden, 1906), pp. 51–122, which contains numerous notices of metallic mirrors with special reference to the "Twelve Animals," also a number of illustrations, among which Fig. 4, being a reproduction of one of the finest specimens now in the Musée Cernuschi of Paris, is of particular interest.

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[1] BIOT, Vol. II, p. 499.

[2] "L'entre-bord des ceintures est appelé garniture de boutons, *Meï.* Les boutons sont appelés les brilliants, *king.*" The commentary adds, "Les boutons, *Meï,* sont les mamelons de la cloche."

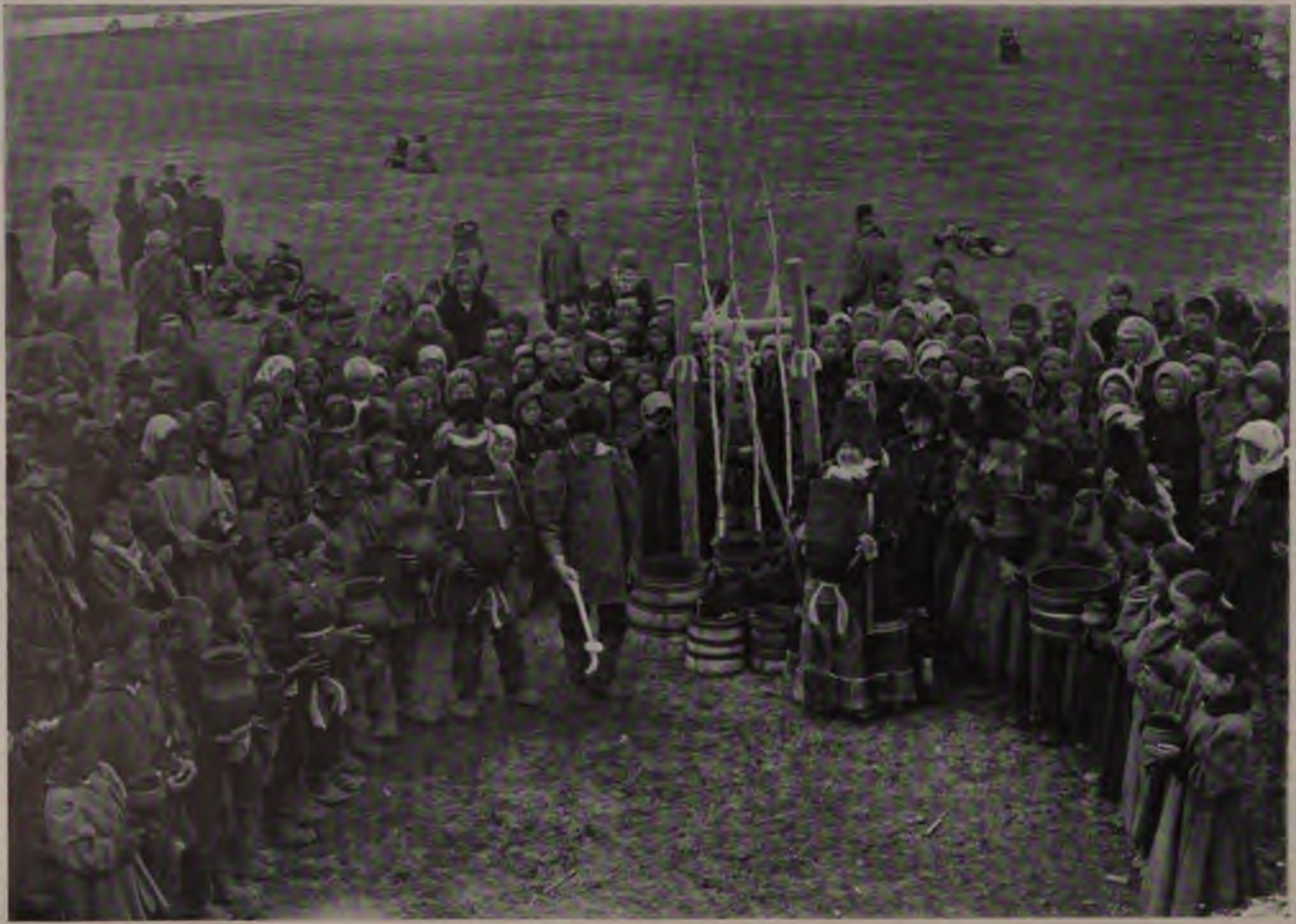
[3] Po-ku-t'u-lu, Chap. 23, p. 26.

CHINESE CHARACTERS.

1博古圖錄 2至大重修宣和
博古圖錄 3寶古堂蔣暘
泊如齋 4西清古鑑 5西清
續鑑 6寧壽古鑑 7圖書集
成 8洞天清錄 9本草綱目
10天工開物 11太平御覽。天中
記。淵鑑類函。格致鏡原
12三才圖會 13七修類藁 14物
理小識 15金石索 16馮雲鵬。
馮雲鵷 17佩文韻府 18駢字
類編 19古鏡記 20寶鏡記
21王黼 22左傳 23鑑 or 鑒 24戰
國策 25芻忌 26窺鏡 27齊
威王 28鏡 29繹史 30我心匪
鑒 31毛萇 32周禮 33古人有言曰
34監 35人無於水監 36趙汝
适諸蕃志 37段＝緞 38眼鏡
39方輿勝略 40滿剌加國
41靉靆鏡 42老人不辨細書
掩目則明 43方輿勝覽 44玉鑑
45玉鏡 46古玉圖譜 47削 48鑒燧

保二親利孫子爲吏高官壽
命久 134 漢鼉龍鑑 135 三
鼉龍 136 枚乳門 137 漢百
乳鑑 138 乳 139 鐘 140 彝 141 百
乳彝 142 直紋 143 乳所以養人
者也猶爪之保子著之於器
以示其永保用之意 144 樂之
聲所以養其耳 145 酒之味所
以養其體 146 枚 147 宋李照
148 論枚乳則以謂節餘聲
蓋聲無以節則鍠鍠成韻
而隆殺雜亂其理然也

保二親利孫子爲吏高官壽
命久 134 漢鼉龍鑑 135 三
鼉龍 136 枚乳門 137 漢百
乳鑑 138 乳 139 鐘 140 彝 141 百
乳彝 142 直紋 143 乳所以養人
者也猶爪之保子著之於器
以示其永保用之竟 144 樂之
聲所以養其耳 145 酒之味所
以養其體 146 枚 147 宋李照
148 論枚乳則以謂節餘聲
蓋聲無以節則鍠鍠成韻
而隆殺雜亂其理然也



KUMISS FESTIVAL OF THE YAKUT (SEE PP. 263, 264.)
(From photo taken by the author.)

KUMISS FESTIVALS OF THE YAKUT AND THE DECORATION OF KUMISS VESSELS.

BY WALDEMAR JOCHELSON.

THE years 1888–97 were passed by me among the Yakut. During the last two years of that period, as a member of the Yakut Expedition fitted out by the Russian Geographical Society, I studied the ethnology of the Yakut of the northern districts of the Yakut Province, — those of Verkhoyansk and Kolymsk. The results of these studies have, up to the present time, been but partly published. During my participation in the Jesup North Pacific Expedition, under the auspices of the American Museum of Natural History of New York, I was engaged in the investigation of the Koryak of the Okhotsk Sea and of the Yukaghir of the Kolyma district. I went to the Yukaghir from the east, across the Stanovoi Mountain ridge, and my way back to Europe and America lay through the country of the Yakut and the whole of Siberia. Professor Boas, the originator of the Jesup Expedition, wished to avail of my knowledge of the Yakut country and tribe, and of my acquaintance there, for the purpose of acquiring a Yakut ethnological collection for the Museum. The Yakut collection gathered by me is most extensive. No European museums, not even those of Russia, have at present more than insignificant collections of this interesting tribe,[1] the ancient culture of which is disappearing under the influence of climate, Russian culture, and change or modification in the forms of industry; and in a few years' time it will be difficult to find many objects of their primitive culture. Even now it is not easy to obtain the large ornamented kumiss goblets of wood which are described below. The conical summer dwelling of the old-time Yakut, made of ornamented birch-bark, all parts of which I was able to bring back, is no longer in use. The so-called Palæasiatic Siberian tribes, — such as the Gilyak, Kamchadal, Koryak, Chukchee, and Yukaghir, — which were studied by the Jesup North Pacific Expedition, were found to have a culture identical in many respects with that of the North American tribes. The Yakut, however, though at present living in the extreme northeast of Siberia, are a typical representative of the culture of the nomadic horse and cattle breeding Turkish tribes of Central Asia. In spite of their present isolation from the other branches of the Turkish race, and their probable mixture with Mongols, Tungus, and others, the Yakut, in the course of their migrations, have preserved one of the oldest and purest dialects of the language spoken by the Kirghis, the Altaic tribes, the Siberian and European Tartars, and other Turkish peoples. In tracing the meaning of some Yakut words, I am indebted to my friend Mr. Edward Pekarski, the well-known authority on the Yakut language, for his assistance.

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[1] Of the museums of Europe, that of Leipzig alone has a small Yakut collection, which was bought at the Paris Exposition of 1900.

While none of the other tribes of the extreme northeast of Asia are numerous, — each being composed of but a few thousands or even hundreds, and those often spread over large districts, — the Yakut, next to the Buryat (of whom there are about two hundred and seventy thousand), are the most numerous tribe of eastern Siberia, numbering some two hundred and fifty thousand. Regardless of the unfavorable conditions of life in their present territory, they are increasing numerically, and are showing capacity for higher material culture and intellectual progress.

According to some indications, the Yakut were separated from the other Turkish tribes of the steppes of central Asia and southern Siberia, and driven to the northeast by the Mongol hordes, at the time of the invasion of the conqueror Chinghis Khan. By the valley of Lena River they reached the country of their present abode, in their turn driving farther to the north and to the mountains, or assimilating, the ancient residents of the country, — the Tungus and Yukaghir. The Yakut brought to the far northeast of Siberia, not only their Turkish language, but also the whole of the comparatively high culture of Central-Asiatic horsemen, brought with them horses and cattle, introduced silver, iron, and copper work, the fashion in dress and dress-ornamentation of the Tartaric peoples, the dualistic religious ideas, and the poetical folk-lore, of Western Asia.

In their old country they were principally horse-breeders. The horses were employed both as beasts of burden and as animals for riding; their skins were used for clothing; their flesh, for food; and kumiss, the fermented drink prepared from mare's milk, served not only as a stimulating beverage, but also as a most important nutritious food.[1] For a time after their arrival in their new abode, the horse was still their principal domestic animal, and kumiss their essential food; but gradually the climatic conditions of the country on the one hand, and contact with Russian culture on the other, have exerted a modifying influence, which is still operative, over both the mental and the material culture of the Yakut. A small part of the tribe in the extreme north of the Yakut province must have experienced a decadence of their former material life. This minority became reindeer-breeders, dog-breeders, or hunters, and fish-eaters. But even into these new lines of life the Yakut introduced more advanced methods.

The tribe as a whole, while engaged in horse and cattle breeding as their chief occupation, began to increase the number of their horned cattle at the expense of their number of horses. Of cow's milk they could make, for use during the long winter, butter, a kind of cheese, and some other milk products which cannot, as we shall see later, be made from mare's milk. The Russian gold-mining companies on the rivers Olekma and Vitim proved profitable buyers of these cattle, and this gave an impetus to the raising of them. Finally, the cultivation of cereal plants, borrowed from the Russians in the southern parts of the Yakut Province, where the climate allows of it, has made such progress in the last twenty years, that at present agriculture is the chief occupation, and bread the staple food, of many Yakut families of the District of Yakutsk, and particularly of that of Olekminsk. Nowadays large droves of horses, and mares for milking, can be found only in those districts far removed from the centres of influence of Russian culture, and they belong to a few very rich families.

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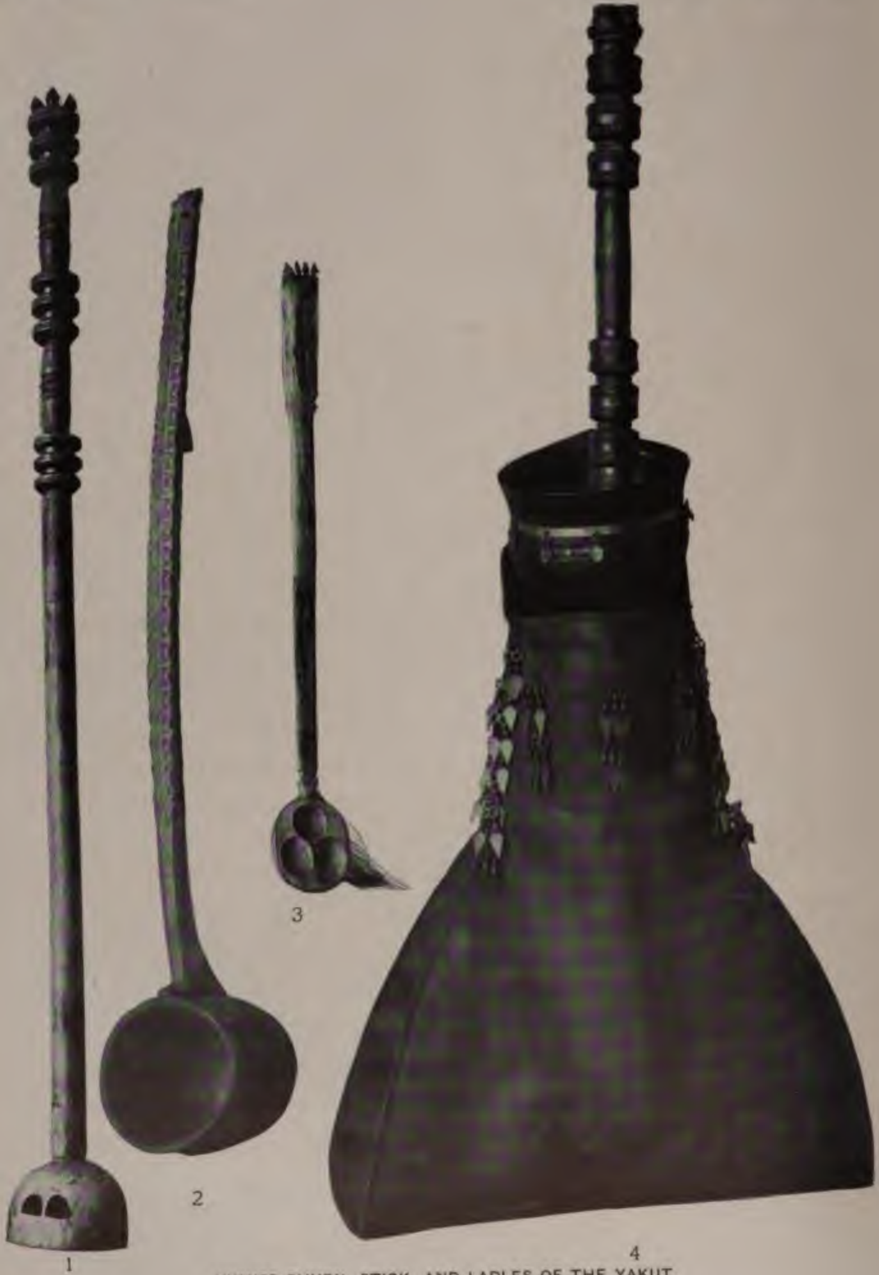
[1] Some travellers consider that the Yakut horse belongs to the present race of horses of the steppes of southwestern Siberia; but it is difficult to say whether the Yakut horse of to-day has any connection with the extinct horse, the fossil remains of which have been found in the polar regions of north-eastern Siberia.

Together with the passing of the production of kumiss, the ancient ornamented kumiss vessels and goblets are also disappearing, as well as the customs, festivals, and ceremonials associated with the production and use of kumiss. Kumiss, which of late has been recommended by physicians as an excellent therapeutic agent in some diseases, was known as a nutritious form of food in remotest antiquity to all the nomadic peoples of Central Asia and of the southeastern part of Europe. Herodotus also mentions it. It is poorer in fat, casein, albumen, and salts, but much richer in milk-sugar, than cow's milk, and therefore is not adapted for butter and cheese making. Fresh mare's milk tastes somewhat disagreeably sweetish. The Yakut do not like it fresh as a drink, but they take it when it is boiled, and also in their tea. Formerly they made from it — cooked with the pounded roots of *Lilium spectabile, L. martagon, Butomus umbellatus,* or *Artemisia vulgaris* — a kind of gruel called *butahas.* As far as we know at present, the preparation of kumiss from mare's milk is based on the fermentation caused by micro-organisms. Under their influence, the milk-sugar turns to lactic acid. When this process is over, the fermentation of alcohol from the lactic acid begins. It has been found of late years that the micro-organisms of kumiss, like those of kephir (a fermented drink prepared from cow's milk), form grains, which can be washed, dried, and preserved. With their aid, kumiss is nowadays prepared for medicinal purposes.

The Yakut, like the Kirghis and Bashkir, use as a ferment some old kumiss or the residue of the kumiss of the past year, carefully collected from the vessels, and dried and preserved. This ferment of kumiss is called *xoyū* ("pulp"). If they have none, the Yakut, as well as the Bashkir, use sour cow's milk as a ferment; but such kumiss is not considered good by the Yakut. When the mare is being milked, buckets made of birch-bark (see Plate XXII, Fig. 4) are used as vessels to receive the fluid. When the milking is finished, the buckets are left until the milk becomes cold, when it is diluted with an equal



KUMISS CHURN, STICK, AND LADLES OF THE YAKUT.

quantity of cold water which has been previously boiled; and the mixture is put into an ox-hide bag or churning-vessel called *simir* (Plate XVIII, Fig. 4), and some of the above-mentioned ferment is added to it. The only use of the water is to increase the quantity; so that when a strong kumiss is desired, less water is added to the milk. The churning-bag is made of ox-hide which has been soaked in blood. This gives it a black color, and also makes it water-tight. For the latter purpose it is also smeared, particularly the seams of its sides, with melted butter. It is ornamented with beads of different colors and with brass or silver pendants.

Before the preparation of kumiss, the churn is placed on a low stool (called *simir oloho*) not far from the fireplace (Plate XIX, Fig. 3), and is hung by a long ornamented ribbon, which passes through brass rings at the neck of the vessel, to one of the middle posts of the house. This is done in order that the churning-bag, when softened by the fluid contained in it, shall not drop down. The ribbon is of black and white horsehair twisted, and is ornamented with leather tassels. In the mouth of the churn is a hollow wooden mouthpiece called *köñkölöi* ("hollowed through," from *köñdöi,* "hollowed"), through which the churning-stick (*xamsatar,* from the verb *xamsat,* "to stir") passes into the churning-vessel (Plate XVIII, Figs. 1, 4; Plate XIX, Figs. 1, 2). Both the mouthpiece and the churning-stick are ornamented with engravings, and brass or silver rings and pendants. The churning-stick is usually in the shape of a horse's hoof. The process of churning lasts from a day and a half to two days, and the women and children often assist in it. The kumiss is then poured into hide or birch-bark barrels, and is ready for use. Such kumiss has an agreeable acid taste, and contains but very little alcohol. The Yakut have no bottles in which to store their kumiss, but when travelling they put it into skin bags of the same shape as the churning-vessels. The opening of the bag is closed by two small sticks tied together at their ends. The bags are placed on the riding or pack horses like saddle-bags. They thus form skin bottles, in which the fermentation continues working out the alcoholic qualities, and the kumiss becomes a strong and heady drink.

I have already mentioned that in former times horse-flesh and kumiss formed the staple food of the Yakut. The hay-makers often carried kumiss with them in skin bottles to the fields as their only food, and it was sufficient for them. "Kumiss slakes the thirst, exhilarates, restores strength, and does not overcharge the stomach," say the Yakut. The hay-makers worked easily and quickly. Under these conditions, it is not surprising that the horse became the object of a particular cult, as an animal on which man chiefly depended for his existence.

Kumiss and fat mare's flesh are regarded in the myths as food worthy of the heroes of divine origin. The horse, tradition says, was let down from heaven and given to man by the chief of the benevolent deities, Lord Bright-Creator (Ürüñ Ayƴ Toyon).[1] According to another tradition recorded by me on the Kolyma River, Lord Bright-Creator sent down to earth another deity, Bar-Allei-Lord (Bar Allei Toyon), to instruct men how to make kumiss. The deity brought with him to the earth the ferment for making kumiss (*xoyū*). One of the ancestors of the Yakut tribe, Dyghyn, says another legend recorded by me, had such large droves of mares, that the kumiss made of their milk filled whole lakes, and everybody came to their borders and drank.

In the myths we find the winged steed an important personage, — the counsellor, assistant, and companion of the hero in battles and travels. Ayƴsƴt, the goddess of fecundity, is supposed to be near the mare during the first three days of foaling. The same deity, or another deity of the same name, — this is not quite clear, — also assists the lying-in woman. In love-songs we often find, by way of praise, the comparison of the hero to a colt, and of the heroine to a mare.

It is regarded as a sin to beat a horse. The bones of a horse must not lie on the ground. In olden times the bones of horses were placed on a platform. If a Yakut finds in his path

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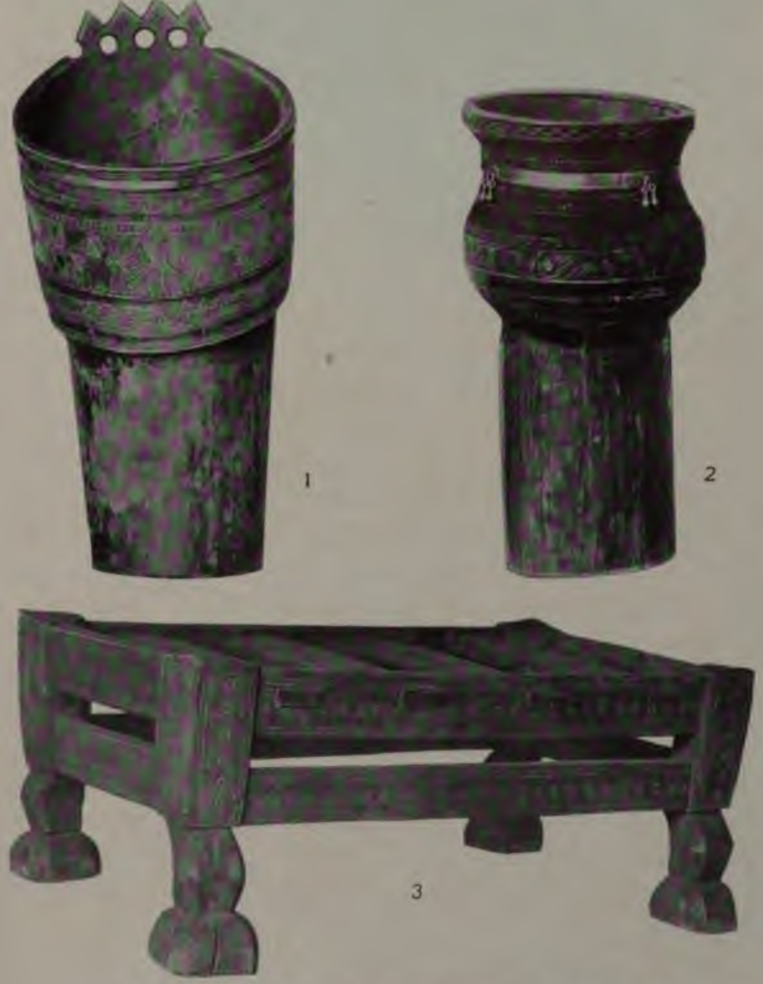
[1] For the division of Yakut supernatural beings into "creators" (*ayƴ*) and "evil spirits" (*abasƴ*), see JOCHELSON, The Koryak (Publications of the Jesup North Pacific Expedition, Leiden, 1905, Vol. VI, p. 119).

PLATE XIX



MOUTHPIECES AND STOOL FOR KUMISS CHURN OF THE YAKUT.

the skull of a horse, he picks it up and hangs it on a tree. Even the excrement of the horse is not regarded as unclean.

The most important festival among the Yakut is connected with the preparation and use of kumiss, and is called *ysyax,* or kumiss festival. It has both a social and a religious significance. During the summer, in olden times, every rich man arranged a kumiss festival, at which all members of the clan assembled and were entertained. Other people, and frequently whole clans, were invited; and during the festival, defensive and offensive leagues were concluded. Every such festival commenced with sacrifices, and was accompanied with songs, dances, games, horse and foot races, and other contests.

Two kumiss festivals in honor of deities are arranged during the year by the owners of large droves of mares. One of them, in the spring, is consecrated to the Supreme Being and the head of the benevolent deities of the "creators" (ay*y*), — to Lord Bright-Creator. The first milking of mares in the spring is also consecrated to the Supreme Being. The spring festival is called *Ayy ysyaxa* ("kumiss festival in honor of the 'creators'"). Spring, as the period of the revival of nature, appears as the season of happiness and abundance. In the prayers addressed to the "creators," they are implored to bestow their blessing upon the people.

The spring kumiss festival takes place in the open air. In the midst of a large smooth grass meadow a kind of altar is erected. This consists of two posts with a crossbeam, and three young birch-trees with young shoots on them (see Plate XVII). The altar is hung round with sacrificial horsehair, and on the ground in front of it are placed ornamented birch-bark and ox-hide barrels filled with kumiss. The skin barrels are tied to the altar-frame by long ornamented straps of soft elk-leather. This is done so that the vessels, when softened by the liquid in them, shall not collapse. The ceremony commences by sacrifices to Lord Bright-Creator and to other "creators." Their names are uttered by the steward of the festival, who may be a shaman or an elder member of the clan. The sacrifices consist of libations of kumiss, in the direction of the dawn, to every deity; and formerly horses were often consecrated by being driven to the east.[1]

The plate just referred to represents one act in a spring festival.[2] In front of the altar stands the steward, having on one side of him the owner of the drove, and on the other the latter's wife. All three face to the east side of the sky, where the benevolent deities have their abode. On the right side of the altar stand nine innocent youths in a row, and on the left a row of nine pure maidens, with goblets filled with kumiss consecrated to the benevolent deities. The splendid festival attire worn on this occasion by a Yakut girl is shown in Plate XX, which represents both back and front views. The trimming consists of valuable fur, silver pendants, and other decorations.

The steward addresses a prayer to the "creators," begging for blessings, — increase of horses and cattle, a good harvest of hay, good health for the people and animals, and an abundance of food. Then he takes the kumiss-festival ladle (*ysyax xamyyaha*), and makes a libation, in the direction of the dawn, to the benevolent deities (see Plate XVII). Then, while making a libation to the ground, he addresses the local deity, "the owner of the place" (*än doidu iccitä*), asking him not to harm the inhabitants of the spot and the members of the clan. After that, the steward, with the help of the sacrificial ladle, proceeds to divine. He throws the ladle towards the sky: and if it falls with the front part upwards, it portends the granting by the deities of future abundance; and all the people utter the joyful cry *Uru!*

Then the boys and girls give the goblets with the sacrificial kumiss, according to the directions of the steward, to the elder and honored members of the clan, both male and female. These, after placing themselves, — the men on the right and the women on the left of the altar, — drink off the kumiss from

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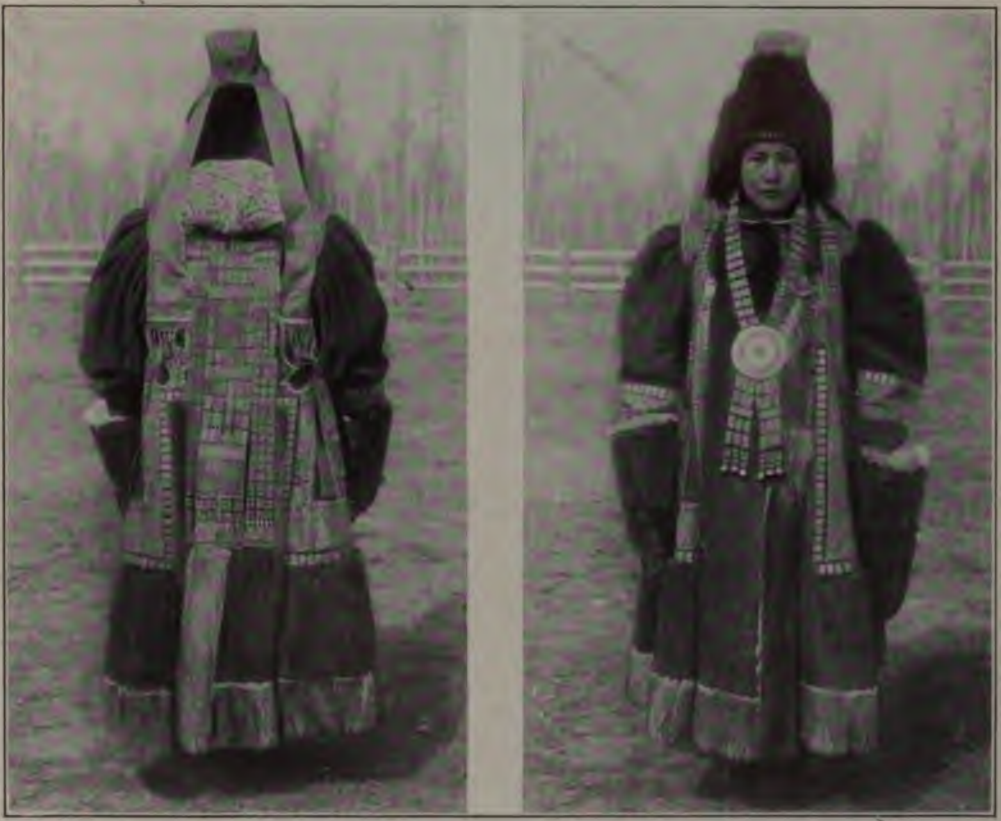
[1] Bloody sacrifices are given only to evil deities, and not to the "creators" (see JOCHELSON, The Koryak, l. c., p. 91).

[2] The festival above mentioned was arranged specially for my benefit; and most of the people, not having ancient dresses, are not clothed in festival attire, as they would have been in olden times. Neither have they enough kumiss-goblets. Most of the goblets to be seen in the photograph were lent by me from the specimens I had acquired in other localities for the collection. This festival took place within two hundred miles of the town of Yakutsk, to the east.



YAKUT GIRL IN FESTIVE ATTIRE.
(From photo taken by the author.)

the goblets, and pass them on to the less important and the younger people. Behind every honored or aged member of the clan, sit or stand his domestics, less esteemed relatives, young men, and laborers. He looks after the welfare of each of these. When the goblet is emptied, it is given back to the steward or the host to be filled.

At the same time, not far from the altar, other stewards are preparing tables, or simply boards on the ground, on which are placed piles of horse and cow flesh, and dishes of melted butter. Every chief of a family or clan receives a large portion of meat and butter, which he divides among his people.

The whole day passes with songs, round dances, games, races and other contests, and shamanistic performances. The poetical choral songs of the young men and girls, in praise of the spring and love, are most interesting.[1] TROSTCHANSKY[2] relates, also, that during the kumiss festival the change of winter to spring is personated in a contest between two men. One of them, dressed in white, represents spring, and is called "son of 'creator'" (*ayy uola*). The other, clad in black, represents winter, and is called "son of evil spirit" (*abasy uola*).

The autumnal festival is celebrated in honor of the destructive forces, and is therefore called *abasy-ysyax*. This festival is dedicated to the evil spirits (*abasylar*), the inhabitants of the west and the representatives of darkness and night, in order that they may not interfere with them in winter, the time of the year when starvation, disease, and death are imminent. This festival, also, takes place in the open air, but at night.

The first night of the festival is in honor of Big-Lord (*Ulu-Toyon*) and the evil spirits of the upper world subordinate to him. The second night is in honor of *Axsan Duolai* and his subordinates, the evil spirits of the lower world. To all of these evil spirits, in addition to the libations of kumiss made to the benevolent deities, blood sacrifices of cattle and horses are also made. This ceremony, according to Trostchansky,[1] is superintended by nine male and nine female shamans.

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[1] Examples of such songs may be found in MIDDENDORFF, Sibirische Reise (St. Petersburg, 1875), Part 2, p. 1578; SÄROSHEVSKI, The Yakut (St. Petersburg, 1896), Vol. 1, pp. 587 et seq.

[2] The Black Faith of the Yakut (Kasan, 1901), p. 106.

The kumiss vessels may be divided into three types, according to their shape:—

1. The *corōn,* an urn-shaped goblet (Plate XXI) with a small foot. These goblets are usually of a very large size, and hold from ten to fifteen litres of kumiss. Their small bases make them unstable. In drinking from them, they are held with both hands.

2. Three-legged goblets, of smaller size (Plate XXII, Fig. 2), called *üs ataxtāx corōn.*

3. Cylindrical vessels with let-in bottoms, of varying sizes, and named according to their size,—the small ones, *mārcax;* and the large ones, *ymyya* (Plate XXII, Figs. 1, 3).

All these drinking-vessels are made from the strong, tough wood of the polar birch-tree. The first two types are carved and hollowed from one piece. Formerly the hollowing-out was done with an adze, but later with the help of a chisel. The finish, polish, and decorative work are done with knives only. The sides of these goblets are made very thin, and they easily crack on drying. A goblet left empty in the sun for a single day is sure to crack. To guard against injury, they are kept in a dark, damp place, and are, besides, freely oiled with melted butter. The oiling causes the goblets to take on the appearance of dark-brown polished vessels. For the same reason, the large kumiss ladles are also oiled (see Plate XVIII, Fig. 2).

The decorative patterns on these vessels are possibly as old as the religion with which the vessels are connected. On them we do not find any Central-Asiatic or Chinese decorative motives of the more advanced periods of Asiatic culture; but we do find such decorative motives—consisting of complicated curves, spirals, coils, conventionalized plants and animals—on the clothing, saddles, and silverware of the Yakut. The ornaments on the kumiss vessels consist almost exclusively of geometrical figures, which, judging by their native names, repre-

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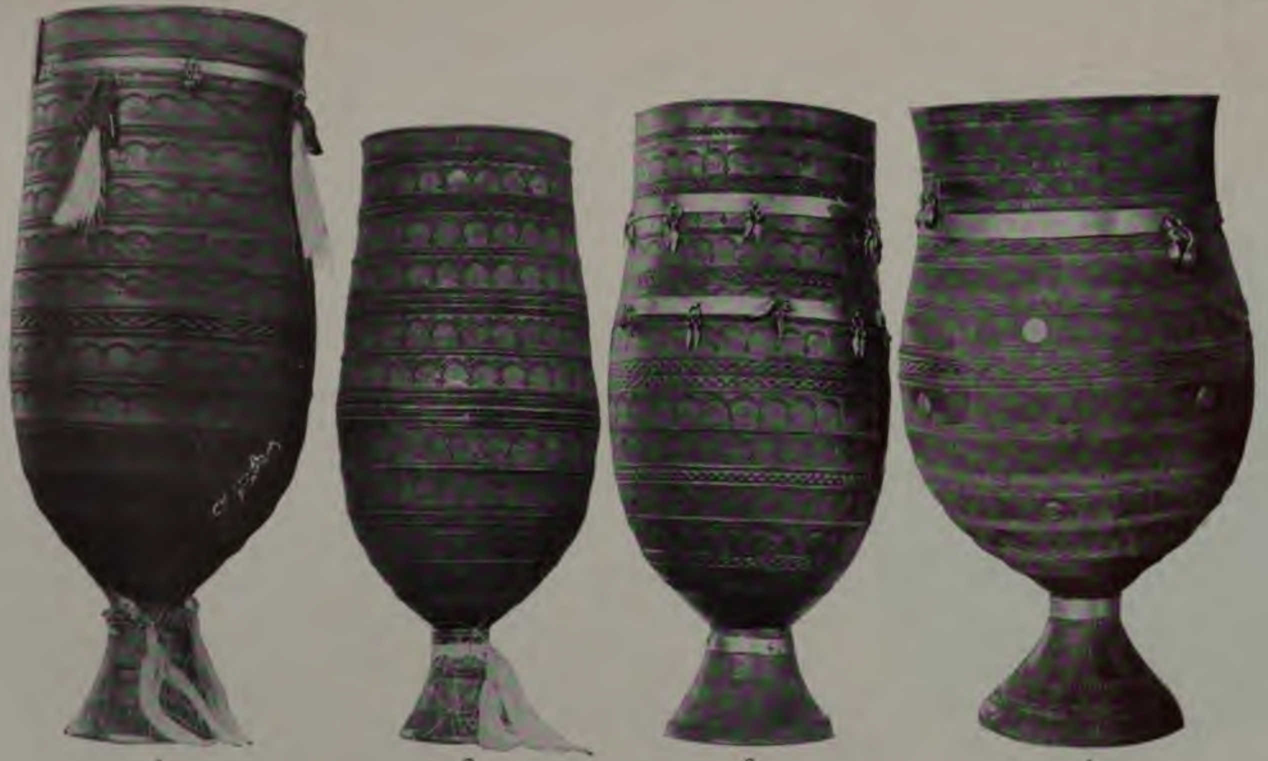
[1] In one of the Yakut legends recorded by Khudyakoff it is related, that, at a festival in celebration of a marriage, there were present nine male and eight female shamans.



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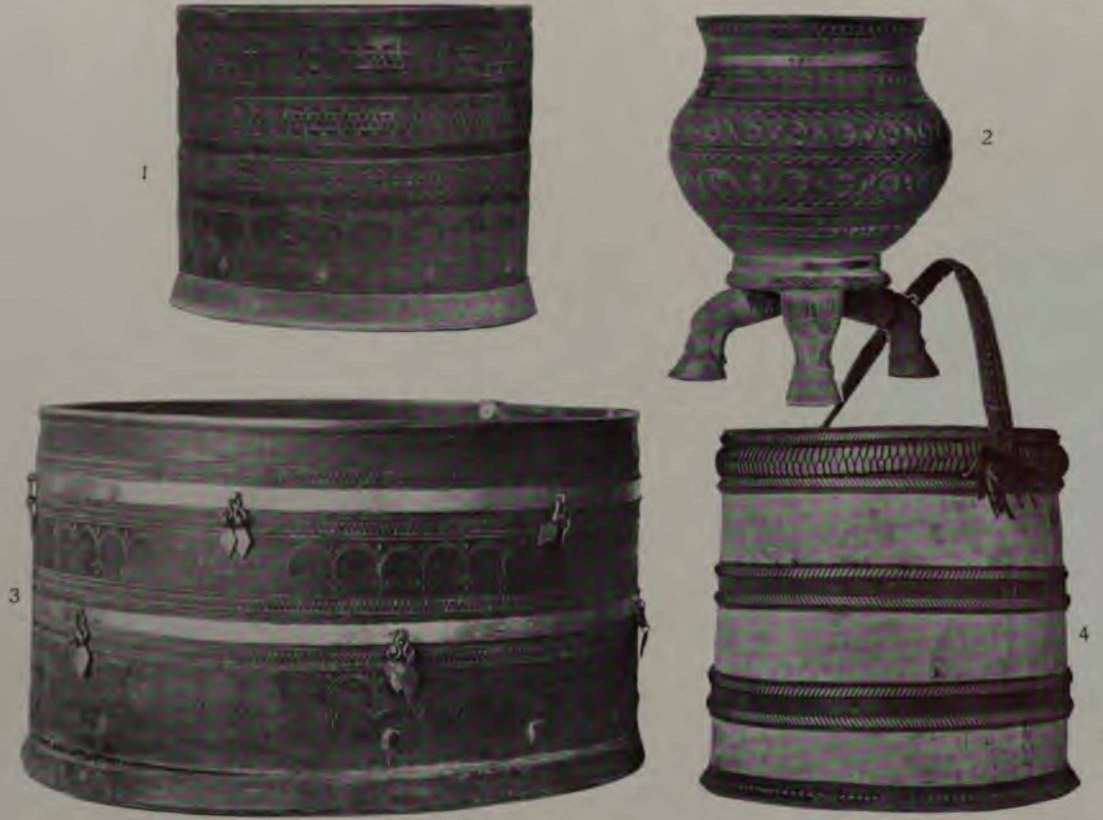
KUMISS GOBLETS OF THE YAKUT.

PLATE XXII.



KUMISS DRINKING-VESSELS AND BUCKET, OF THE YAKUT.

sent, in more or less conventionalized form, implements or other household objects. Fig. 8 shows the patterns which occur most frequently on the kumiss vessels.

Nos. 1–3 are called *tarāx oyū,* that is, "comb-ornament," and represent combs.

Nos. 4, 5, are called *ilim xaraha oyū,* that is, "net's eyes ornament." They represent fish-nets. The dots in No. 5 stand, most probably, for caught fish.

Nos. 6, 7, are called *äriyä oyū,* that is, "wound ornament" (from the verb *ärii,* "to wind"). They represent the weaving of baskets by winding thread around bunches of grass. The same rope-pattern on the birch-bark bucket on Plate XXII, Fig. 4, which was made by winding horsehair thread round the hoop of the bucket, is called *äriyä tigī,* which means "twisted sewing."

Nos. 8–10 are called *urasa oyū,* that is, "hut-ornament." These zigzag patterns represent the ancient conical summer houses of the Yakut. The same patterns embroidered in thread on skin bags (No. 9) are called *urasaly tigī,* that is, "hut-embroidery."

No. 14 is called *kybytya oyū,* that is, "wedge-ornament" (from the verb *kybyt,* "to force in"), and represents a wooden wedge for splitting wood.

No. 22 is called *timäx tördö oyū,* which means "button-base ornament." This pattern, consisting of a series of three or four inscribed diamonds, used to be embroidered on the old-time clothing of the Yakut, at the places where the buttons used to be sewed on.

No. 23 is called *kärdis oyū,* that is, "notched ornament," and represents the primitive writing of the Yakut by means of notches on sticks.

Nos. 28, 29, are called *tonohos oyū,* that is, "kumiss skin-bag ornament," and represent large kumiss vessels of hide.

It is of interest to note that all the decorative patterns so far mentioned are of a purely decorative character, and have no connection with religious ideas. This decorative character consists, not in the simple units, but in the highly harmonious and extremely symmetrical repetition of them.

Neither in the engraving and carving on the wooden kumiss vessels, nor in the embroidery on the leather and birch-bark vessels, do we find any realistic representation of animals or objects. Realistic art was evidently not known to the Yakut in the past. SÄROSHEVSKI remarks that the old-time Yakut considered it a sin for any one except shamans to carve human figures from wood. The shamans carve these roughly of wood, which represent "guardians" or evil spirits, for use in religious ceremonies, and they are not regarded as harmless to ordinary folk. I saw figures of cows and horses carved from wood or birch-bark, to be used by children as playthings, but there were never any dolls among them. Some Yakut living not far from the Russian town of Yakutsk carve from ivory, among other things human figures; but I consider this to be a rather inartistic imitation of the carvings of neighboring tribes.

The only attempt at realistic reproduction in the ornamentation of kumiss vessels is to be found in the carving of horses' hoofs. Thus the feet of the three-legged goblets are often carved in the shape of horses' hoofs (Plate XXII, Fig. 2). The mouthpiece of the kumiss churning-vessel likewise often has the form of a horse's hoof. Even in a conventionalized form we do not find the representation of an animal or human figure, not even that of the horse, which forms an object of their animal cult; but, judging from the Yakut names, we do meet with conventionalized representations of parts of the human body.

Thus No. 13 (Fig. 8) is called *tonohos oyū,* that is, "vertebral ornament," and represents the spine or neck vertebra.

No. 15 is called *tyñyrax oyū,* which means "nail-ornament," and represents human nails.

No. 16 is called *tarbax oyū,* which is "finger-ornament," and is a conventionalization of the human finger. On birch-bark vessels we find the same ornament embroidered in horsehair (Plate XXII, Fig. 4), and it is then called *tarbaxtȳ tigī*, which means "finger-embroidery."

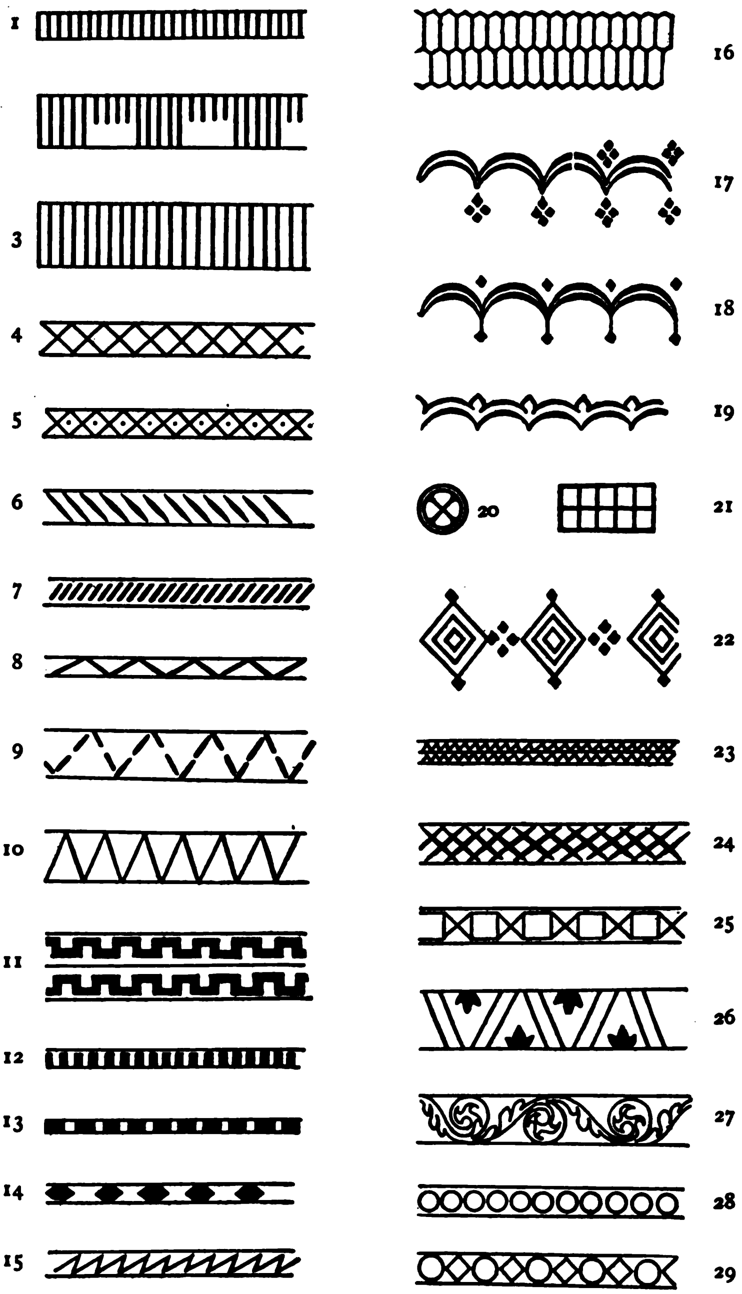


Fig. 8. Yakut Designs.

It is likely that the "nail" and the "finger" ornaments originated from the Yakut pottery-work, which is still preserved in a very primitive form.[1]

No. 21 is an ornament copied by me from a Yakut clay pot, and is called *tyñyraxmāx torduya,* which means "nail-raising." But this pattern is impressed in the soft clay, not with the nail, but with a wooden stamp named *küös oyūlūr mas,* meaning "a stick [*mas*] for the ornamentation of clay pots [*küös*]."

No. 20 is also stamped on clay pots, and is called *bültäghir torduya,* which means "rounded raising," but this pattern is also found on kumiss vessels.

There can also be found on kumiss vessels a pattern, not here illustrated, called *tañalai oyū* ("palate-ornament"). It consists of small curves which represent the arch of the palate.

Nos. 17–19 are often seen engraved in or embroidered on kumiss vessels. They are called *sarbyn'n'ax oyū* ("hanging ornament"). This pattern is made with the concave face turned either downwards or upwards. In the first case it represents the hanging arch of the sky; in the second, a rope hung up by the two ends. In a form similar to the latter it is also found on the clay pots of the neolithic age of western Europe, and was named *Schnurgehänge* by the German archæologists, which name coincides with the Yakut one.

The decorative work on the kumiss goblets is usually made by engraving the patterns on the even surface of the vessel. But we also find patterns carved in relief; for instance, the net-ornament mentioned before is in relief on the goblets on Plate XXI. Some patterns made in relief (see Nos. 11, 12, Fig. 8) have a common name, *tomtorgo oyū,* which means simply "relief ornaments," and which refers only to the style of carving, and not to the meaning of the pattern.

Nos. 26, 27, which include conventionalized plants, are called *usuor oyū.* The word *usuor* is borrowed from the Russian word *uzor* (in Polish *wzor*), which means "pattern." The patterns too are evidently borrowed from Russian decorative motives.

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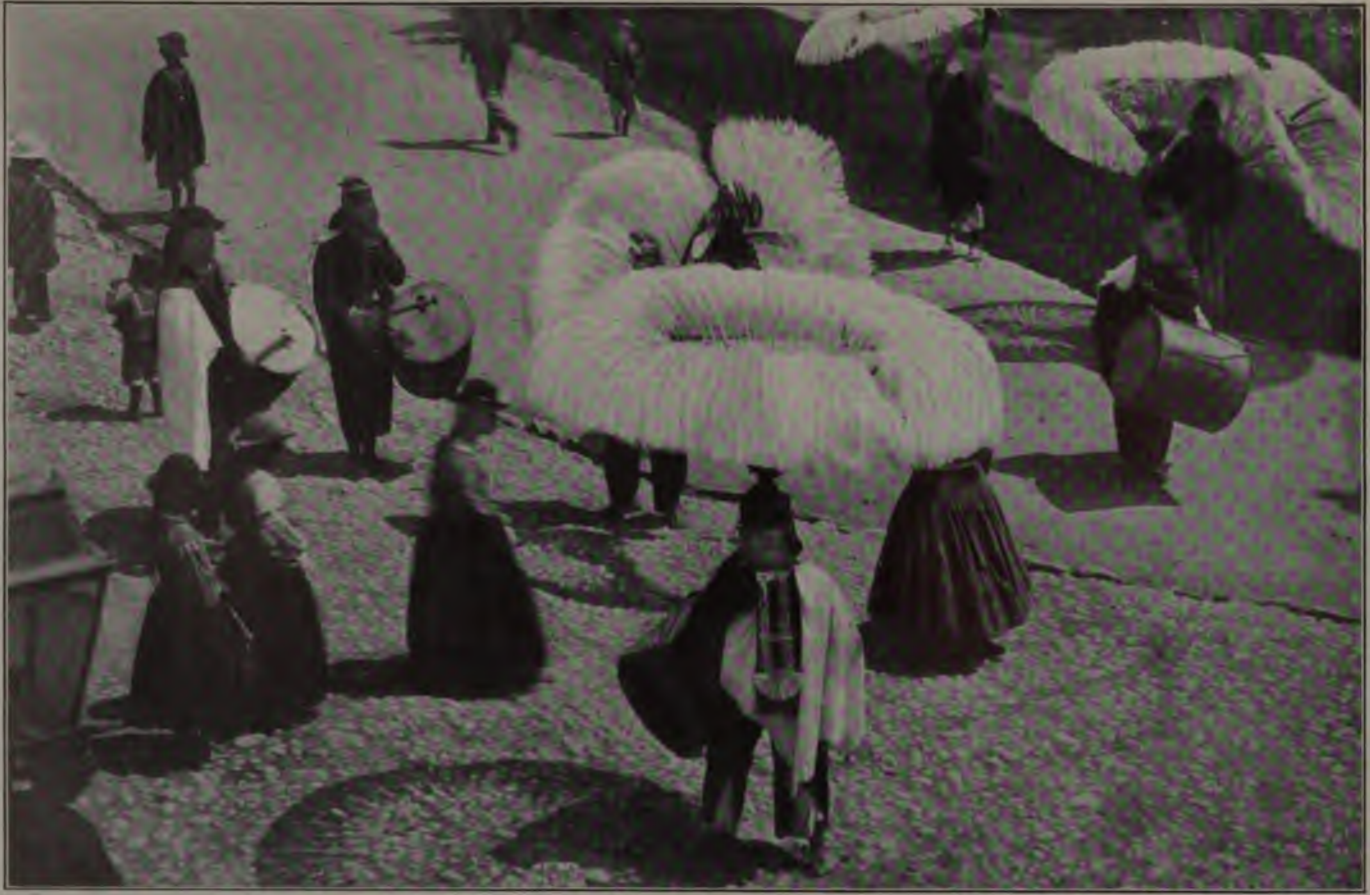
[1] A short description of Yakut pottery will be given in my work on the Koryak (Jesup Expedition Publications, Vol. VI).

In the same way, judging by the names, the lineal ornaments of Nos. 24, 25, — the first called *duobat oyū,* and the second *saxymat oyū,* — must be regarded as borrowed from the Russians. *Duobat* is the old Russian word *doved,* which means the game of draughts; and *saxymat,* which is the Russian word *shachmat,* means "chess."

LA DANSE DES "SICURI," DES INDIENS AYMARÁ DE LA BOLIVIE.

PAR AD. F. BANDELIER.

LE rôle que l'Autruche américain joue dans les contes et traditions des Indiens de la Bolivie est à peine connu. En général, les fables et les mythes des Aymará n'ont été, jusqu'à présent, qu'effleurés par les explorateurs. L'Indien Aymará (comme neuf années de résidence parmi eux nous l'ont fait sentir) jouit d'un caractère excessivement désagréable. Pénétré encore des idées de son ancienne culture, donc ennemi à outrance de tout ce qui est étrange et nouveau, il cache avec une réserve jalouse ce qui se rapporte à l'époque pré-colombienne, et sa méfiance envers celui qui tâche de pénétrer le passé de sa race est si grande, qu'elle rend toute recherche presqu'impossible. Ce n'est qu'avec les plus grandes difficultés que nous avons réussi à découvrir les bases de son ancienne organisation sociale et religieuse, et tous nos efforts pour pénétrer plus avant dans ses secrets et surtout dans les mythes primitifs, ne nous ont produit que quelques lambeaux d'histoire locale. Ce que l'Indien Aymará raconte parfois au blanc, et de bonne grâce, c'est le conte de la destruction des "Chullpas." — Le mot "Chullpa" ne désigne aucunement une tribu éteinte, comme on l'admet généralement. C'est tout simplement le nom que les Aymará donnent au sac ou à l'enveloppe, tressée en paille de la Puna (*Stipa Ichhu*), et dans laquelle l'Indien renfermait les cadavres des défunts avant de les enfouir sous le sol qui formait le plancher de sa demeure. Cette demeure, construite en briques ou tourtes mélangées de paille et sechées au soleil; en pierres, ou en pierres avec terre pour mortier; en forme de tour, carrée ou ronde, fut, sous la domination espagnole, désignée comme "Chullpa" aussi, et peu à peu l'on s'habitua à appliquer le nom aux anciens Aymará, qui avaient bâti ces édifices. Le conte de la mort subite des "Chullpa" (à la première apparition du soleil) n'est peut-être pas même un mythe primitif.



LA DANSE DES " SICURI."

(Photographie prise par l'auteur à Sorata, Bolivie.)

Les Aymará appellent *Rhea Americana* "Suri." Le grand oiseau habite le plateau élevé bolivien du sud-ouest, où il commence à devenir rare. Dans le sud-est bolivien il est plus commun, comme, surtout, dans l'Argentine et dans la Patagonie. Avant l'arrivée des Espagnols le Suri s'approchait quelquefois des rives du lac Titicaca, mais les Aymará ne pouvaient le chasser qu'avec peine. Aussi ce n'est que depuis l'introduction des armes à feu et du chien européen,[1] ainsi que du cheval, — que les plumes du Suri ou Nandu sont devenues accessibles aux Aymará en quantités suffisantes pour être de quelque utilité. Ces plumes n'ont du reste aucune valeur commercielle, elles sont d'un gris sale et leur longueur varie naturellement, selon l'âge et la taille de l'oiseau. En 1639, le Père Nieremberg écrivait au sujet de l'autruche américain: "Sagacissimi ingenij est struthio in Occidēte. Suri ab Indis, ab alijs Iardu vocatur, ignobilioris & inelegantioris pennae, quám in Africa. Color non plené albus, sed in fuscum degenerans."

Les Indiens Aymará du haut plateau bolivien fabriquent, des longues plumes de l'autruche, une espèce de couronne énorme, que certains des leurs portent sur leurs têtes dans la danse appelée des "Sicuri." La planche ci-jointe (Plate XXIII) donnera au lecteur une idée de cet ornement grotesque. Les plumes sont cousues sur une calotte en cuir ou drap grossier, de manière à ce qu'elles se dressent comme un énorme parasol dont la voûte est ouverte; les bouts des plumes retombant en dehors comme un panache. La calotte est étroitement ajustée au crâne, mais l'ornement est si lourd, que les danseurs préfèrent souvent le porter sur une épaule en le tenant des deux mains. — L'effet que produit la vue de ces énormes couronnes en plumes est frappant, car elles semblent se mouvoir toutes seules au-dessus des têtes des autres danseurs. A cause de la difficulté de se procurer les plumes de l'autruche il n'y a jamais qu'un petit nombre d'Indiens qui s'en affublent, et ce n'est qu'à un prix assez élevé que l'on peut acquérir un exemplaire de cet ornement bizarre.

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[1] Le chien indigène de la Puna (*Allco* en Quichua, *Anu* en Aymará, est un bon chien de garde. Pour la chasse il est autant qu'inutile.

La danse dans laquelle figurent ces appareils est appelée *Sicuri,* en Aymará. *Sicu* ou *sico* est une flûte de Pan. — A part la petite flûte en roseau (très commune dans toute la Sierra pérou-bolivienne et que chaque Indien porte avec soi) il y a la "zampoña" (espagnol, probablement de "sambucus," mais aussi italien "zampogna," donc un nom importé par les Espagnols) de la même forme, mais beaucoup plus longue. Le "sicu" donne des sons aigus, la "zampoña" des sons rauques et plus profonds. Dans une fête la soi-disante musique des Aymará n'est autre chose qu'un vacarme horrible. Chacun joue l'instrument qu'il a pu obtenir et l'air qui lui plaît. Chaque groupe, chaque délégation représentant, soit une société ésotérique, soit une *hacienda* ou un *ayllu* ("clan"), joue son air sans s'occuper de l'harmonie générale. Des tambourins primitifs retentissent dans tous les coins, même de vieux tambours militaires, et l'une ou l'autre grosse caisse en retraite, joignent leurs efforts à ceux d'instruments plus primitifs. Un cornet à piston délabré élève de temps à autre sa voix à côté des fifres ("pincollo"), et de la clarinette ("kena") indigènes. Le cornet à piston remplace aujourd'hui les cors en métal ou en terre cuite qui figuraient dans les cérémonies primitives, et dont l'usage fut sévèrement interdit au commencement du dix-septième siècle, à cause du rôle qu'ils jouaient dans les rites anciens. . . . En sus, les voix criardes des danseurs et des danseuses (qui bégayent et hurlent plutôt que de chanter), rendent le tintamarre encore plus hideux. Il est impossible de distinguer un air, de surprendre un texte. Ceux qui prennent part à la cérémonie sont tellement abrutis par la boisson qu'il est impossible de rien tirer d'eux et, après la fête, lorsqu'ils sont revenus un peu à leurs sens, ils se renferment dans leur mutisme habituel.

Les "Sicuri" ne fonctionnent pas dans toutes les danses, mais ils prennent part, quelquefois, à des réunions plus modestes que les grandes cérémonies publiques. Nous avons vu à Patacamaya, un "Cusillu" (danseur représentant le singe) affublé du grand panache circulaire de Sicuri. A peine une vingtaine de personnes assistaient à la fête. — Où nous vîmes le plus grand nombre de Sicuris réunis, fut à La Paz, pour la fête nationale du seize Août, et à Tiahuanaco au mois de Septembre, pour le jour de "la Exaltacion de la Cruz."

A part l'ornement de tête en plumes d'autruche que nous venons de décrire, la costume des Sicuri n'a rien très remarquable. Il consiste en une jaquette courte semblable à celle que portent les "toreros," des pantalons bouffants (que les Aymará ont adoptés depuis la conquête) sous lesquels paraissent des caleçons blancs brodés. Des bottines à semelles très fortes avec de gros clous en fer ou en cuivre, complètent ce costume qui n'a rien de primitif. Nous avons aussi vu des sicuri portant la cuirasse en peau de jaguar, dont se revêtissent une autre espèce de danseurs, nommés "Kena-kena." Ce nom leur est donné à cause de la clarinette en roseau appelée "kena," qu'ils jouent en dansant.

Les Sicuri, ainsi que les "Kena-kena," sont classés par les sorciers Aymará parmi les sociétés de danse de formation récente. C'est ici l'endroit de dire un mot touchant les groupes clandestins et l'ancienne organisation religieuse des Aymará. Cette organisation existe aujourd'hui, mais elle est cachée aux blancs autant que possible, par suite des persécutions que les sorciers indiens eurent à souffrir au dix-septième siècle. Ces poursuites étaient cependant justifiées, par la pernicieuse influence que les anciennes coutumes exerçaient sur la vie du peuple, et leur tendance à entraver tous les progrès que le gouvernement espagnol désirait introduire. Mais, déjà avant la conquête, chaque groupe de sorciers indiens avait ses trucs de métier et les cachait par un égoisme très-naturel, comme aujourd'hui un inventeur garde le secret de son invention, aussi longtemps qu'il n'a pas la garantie de pouvoir s'en servir exclusivement.

Nous avons reconnu, parmi les Aymará, l'existence de quatre groupes principaux de chamans ou magiciens (plutôt sorciers), dont la besogne consiste à cultiver, chaque groupe dans sa sphère et chaque membre dans le domaine du groupe auquel il appartient, *les relations de l'homme avec le monde surnaturel.* Ces groupes se nomment, respectivement: Kolliri, Layca, Yatiri, et Hacha Tata.

Les Kolliri sont les plus nombreux et occupent un rang inférieur. Ils sont ceux qui guérissent et qui *ont le droit de se servir de moyens magiques,* dans le traitement des malades et des blessés. Il n'est pas défendu aux autres Indiens (ou Indiennes) de soigner les malades, aussi longtemps qu'ils n'usent pas de la magie, mais, du moment qu'ils le feraient, ils s'exposeraient au soupçon de pratiquer la *mauvaise* sorcellerie, la *magie noire.* Il est facile de comprendre comme les individus accusés de tel délit sont châtiés. On le fait en secret mais — d'une manière définitive. Les Kolliri portent, dans certains districts, les noms de Lojtiri et Aculltiri, qui indiquent peut-être aussi des sous-divisions du groupe.

Les Layca ne sont pas aussi nombreux que les Kolliri. Il leur est permis de guérir (par des trucs qui ne sont peut-être pas connus des Kolliri), cependant, la tâche des Layca consiste plutôt à retrouver des objets perdus, des choses volées. C'est aussi le Layca qui préside à la cérémonie de la Tinca, sacrifice qui doit précéder toute excavation ainsi que toute bâtisse indigène. A ces fonctions, il joint celles de magicien de la chasse et de la pêche. Ainsi il dirige la danse appelée des Chokela ou Chayllpa, et les cérémonies qui doivent l'accompagner. C'est aussi lui qui doit " faire la pluie." Quand une sécheresse menace, à l'époque des semailles, les Indiens attrappent des crapauds vivants, et les exposent sur les crêtes et sommets des hauteurs qui environnent les champs. La même chose se fait avec les effigies en pierre de ces amphibies (fétiches primitifs qui ont échappé aux recherches). Les Layca prononcent les invocations et font les sacrifices de circonstance.

Le troisième groupe est celui des Yatiri. La signification de ce mot est donnée comme " celui qui sait tout," néanmoins, le même nom (comme titre) sert à qualifier, et avec plus de raison, des fonctionnaires religieux d'un rang supérieur.

Le Yatiri est surtout diseur de bonne aventure, prophète, dans un sens modeste et restreint. Les feuilles de la coca lui servent (comme aux autres chamans dans d'autres buts) à jeter le sort, il interprète, ses propres songes lorsqu'ils sont la conséquence de l'excès de boisson ou de la coca; ou ceux des personnes qui viennent le consulter au sujet de leurs rêves. Il peut aussi guérir par des voies magiques, mais, ce qui surtout le distingue du Kolliri et du Layca, c'est son rôle de "chaman de la guerre." Les Indiens montagnards du Pérou et de la Bolivie sont presque constamment aux prises entr'eux de tribu (Estancia) à tribu, de tribu à hacienda, ou de hacienda à hacienda, pour des questions de terrains. L'usurpation de pâturages, de terres en culture, amène chaque année, tantôt ici, tantôt là, des combats en règle. Ces hostilités durent parfois des années et terminent souvent par une dévastation complète des demeures des vaincus. C'est le devoir des Yatiri d'invoquer, avant chaque engagement, le secours de "Ceux d'en-haut," pour leur parti. Cela fait des Yatiri le groupe ou l'ordre des "chamans de la guerre." Nous trouvons donc dans les trois classes de magiciens des Aymará, les représentants des trois sociétés ésotériques que mon défunt ami Cushing et moi trouvâmes parmi les Pueblos du Nouveau Mexique, et dont les traces existent, avec des variantes locales, chez tous les Indiens de l'Amérique, c'est-à-dire, les "médecins," les "chasseurs," et les "guerriers." Là où la pêche est plus abondante que la chasse, donc plus importante pour la vie, le groupe des chasseurs est dominé par celui des pêcheurs.

Il nous reste à parler du quatrième et dernier "ordre ésotérique." Beaucoup moins nombreux, ses membres sont supérieurs, en rang et surtout en autorité à tous les autres. On appelle en Aymará, les chamans qui le composent Hacha Tata ("Grands Pères"), et les Métis leur attribuent le don de "savoir tout," c'est-à-dire de posséder *l'essence du savoir des trois ordres inférieurs,* joint à des connaissances que les Hacha Tata seuls peuvent acquérir !

Dans chaque tribu ou "Estancia," il n'y a ordinairement qu'un seul de ces magiciens "suprêmes," que les Indiens regardent comme le faîte de leur ancien système religieux. Ils sont les gardiens de la foi et des traditions du passé, les oracles qui ont le dernier mot dans toutes les affaires publiques, dans toutes les questions personnelles qui leur sont soumises. Ce sont eux qui examinent les candidats aux trois ordres inférieurs et qui les rejettent s'ils les trouvent incapables, ou les admettent, avec des cérémonies dont nous ne connaissons que quelques détails.

Ainsi que dans les autres "ordres," la transmission de la dignité de chaman ne se fait pas par voie héréditaire, chez les Hacha Tata. Le fils *peut succéder au père, mais seulement* si sa naissance a coincidé avec un phénomène quelconque, que l'on peut interpréter comme une manifestation des pouvoirs surnaturels. Et même, après, il est soumis pendant longtemps à une éducation préparatoire, dirigée par le Hacha Tata lui-même, qui le surveille et lui enseigne peu à peu les trucs du métier. S'il se montre indigne ou incapable, surtout s'il manque de *discrétion,* on l'écarte, et le Hacha Tata en *adopte* un autre. C'est cette adoption qui a fait croire que le fils succédait toujours au père. Une fois le candidat reconnu comme futur successeur, le grand sorcier lui communique tous ses secrets petit à petit, réservant pour les derniers moments de sa vie les plus importants. Ce que sont ces secrets il n'est guère possible de découvrir; tout semble à indiquer des manipulations hypnotiques.

Rien, dans l'extérieur du Hacha Tata indique l'importance du rôle qu'il joue dans sa tribu et parmi les Aymará en général. Souvent il affecte la pauvreté, même la misère. La seule chose qui le distingue visiblement des autres sorciers (pour celui qui est bien au courant) est, qu'il ne porte jamais ni croix ni crucifix, ni scapulaire; tandis que les magiciens des trois autres groupes montrent ces ornements avec une certaine ostentation, et se servent du crucifix dans presque toutes leurs cérémonies, pour bénir la coca et les sortilèges en général. Le Hacha Tata par contre non seulement évite de faire usage de la croix dans ses invocations, il ne prononce jamais la parole *Dius* ou *Dius auqui,* comme l'Aymará appelle le Dieu des Chrétiens.

Le Hacha Tata mène une vie modeste. Il se marie comme les autres Indiens et demeure avec sa famille. Seulement, tous les mardis et tous les jeudis, il se retire dans une cabane à peu de distance de sa demeure et où, dit-on, il entretient des hiboux vivants. C'est là qu'il "travaille," où il reçoit les malades que les chamans de rang inférieur lui envoient en dernier ressort, après que leurs efforts ont échoué. Cette cabane isolée, elle est à la fois le laboratoire, le bureau de consultation, et la clinique. C'est depuis cette hutte qu'il dirige, sans bruit aucun, les autorités de sa tribu, au moyen des conseils qu'il prétend recevoir d'en Haut. On nous a assuré que, à de longs intervalles, les Hacha Tata d'un district ou même de plusieurs, se réunissent en secrèt pour délibérer, et que ces réunions coincident généralement avec des événements politiques de haute importance pour le sort du pays. Car l'Indien suit avec soin tous les mouvements, des Métis comme des Blancs. S'il n'essaye pas de profiter de son énorme supériorité numérique pour rétablir par force l'état primitif, c'est parce que, d'un côté, il lui manque la cohésion dans sons organisation sociale et, d'un autre côté, parce que ses directeurs religieux, les chamans principaux, reconnaissent l'impossibilité de lutter avec succès contre les ressources techniques et contre l'argent des autres classes.

Et cependant, ces chamans ne sont rien moins que pauvres. Aucun d'eux, même pas le Hacha Tata, ne travaille *pro bono publico*. Ils reçoivent (et de bonne grâce) des compensations pour leurs "travaux." Cette compensation se donne selon les moyens de celui qui se fait traiter ou qui les consulte sur des points obscurs du passé, présent ou futur. Et non seulement les Indiens ont recours à eux; les Métis et les Blancs forment une grande partie de leur clientèle, *en secret!* Ainsi leur influence s'étend bien au-delà du domaine de leur race.

Généralement parlant, tous les chamans croient à la réalité et l'efficacité de leurs sortilèges. Il suffit qu'ils leur aient été transmis depuis des siècles, pour qu'ils les respectent comme des articles de foi. Mais le fait que ces pratiques sont pour eux un *métier*, un *moyen de gagner la vie,* rend leur sincérité un peu suspecte de temps à autre. Souvent ils spéculent sur la crédulité de leurs clients et surtout, lorsque ces clients ne sont pas des Indiens! Le chaman est souvent imposteur. Il exagère le secret qui entoure ses travaux préparatoires (surtout ceux des Hacha Tata), en augmente le mystère, dans le but d'extorquer plus de remunération. Il y a aussi certaines de leurs pratiques (parmi celles qui ont survécu à l'époque primitive) qui ne supportent, ni le grand jour, ni la critique des lois. Beaucoup de crimes se commettent sous le prétexte de sorcellerie.

Tous les chamans, et avant-tout les Hacha Tata, sont des sorciers. Étant donnée et permise (même reconnue par les Indiens comme indispensable) la magie "blanche" ou bonne, il s'en suit l'existence de la magie "noire," et qu'elle est pratiquée très souvent. C'est une des tâches principales des chamans de la combattre, de défendre contre elle leurs clients. La grande majorité des accidents, des maladies, est attribuée par les Indiens à la sorcellerie mauvaise. Pour se garantir des méchants sorciers il ne suffit pas de défendre, il faut attaquer. Et pour attaquer avec succès il faut que le médecin, le devin, connaisse les armes de l'adversaire! Ainsi les chamans sont obligés, presque, de savoir la "magie noire" aussi et, de pouvoir la pratiquer. La tentation de s'en servir pour voiler des actes criminels se présente plus souvent que l'on ne croit.

Les quatre groupes de magiciens soi-disants "officiels" desquels nous venons de parler ne sont pas, en Bolivie, cachés au public, excepté, jusqu'à un certain point, les Hacha Tata. Et même ceux-ci sont généralement connus quoique souvent sous un autre nom, celui de Chamakani (de chamak *obscur,* et du possessif *ni,* donc, celui *qui a* ou *qui possède l'obscurité*). Ce titre est un surnom que l'Indien repousse comme une insulte. Cependant il y a quelque raison pour le donner, car c'est surtout la nuit que "travaille" le "grand-père" de la tribu. Ensuite il est gardien des anciennes traditions, des mythes du passé, et ce passé est souvent désigné comme les "temps obscurs" (*chamak tempu*), depuis l'introduction du christianisme.

Ce sont les groupes de magiciens ou sorciers qui contrôlent et dirigent les danses, publiques et secrètes, non seulement des Aymará, mais de presque tous les indigènes américains. Car la danse est, chez ces peuples, avant tout une fonction religieuse. Aussi sont-ce les plus anciennes qui sont regardées, parmi les Aymará, comme les plus sacrées, donc les plus importantes. Leur signification n'est souvent connue que des chamans et de quelques intimes; ils font exécuter l'une ou l'autre d'elles dans des buts et à des époques connues à eux seuls, et ceux qui y prennent part n'appartiennent pas toujours aux "ordres." Ce sont des jeunes gens, que l'on exerce sous la direction d'un "Initié" qui porte le titre de "Irpa." Quelque temps avant la fête, il y a des répétitions clandestines auxquelles préside, outre le directeur officiel, l'un ou l'autre des chamans. Le nombre de ces danses est très grand et nous ne citerons (comme des plus primitives) que les " Chirihuanos," les " Mimula " (actuellement interdite comme obscène, les " Pusi piani," et les " Chayllpa " ou " Chokela." La danse des Sicuri est, comme nous l'avons dit, relativement *moderne*. Avant la conquête, l'Indien du plateau bolivien ne pouvait se procurer les plumes de l'autruche qu'à grand' peine. En outre des Sicuri proprement dits, il y a au moins deux groupes qui en sont des ramifications encore plus récentes, les " Inca sicuri " et les " Chunchu sicuri." Le costume de ces derniers est en partie emprunté à celui des " Chirihuanos " dans la jupe blanche à plissons qui les couvre de la taille jusqu'aux pieds. Sur la tête, ils portent un appareil en roseaux imitant le grand panache circulaire du Sicuri, mais orné de touffes de plumes rouges, jaunes et vertes (Plate XXIII). Les Inca sicuri sont affublés de vêtements en velours et en soie, et portent une espèce de toque à plumes. C'est le costume attribué aux Incas d'après les quatre toiles que le viceroi Toledo fit remettre en Espagne en 1573, les ayant fait peindre au Pérou par des Espagnols et approuver par des Indiens qui prétendaient se rappeler du costume de leurs ayeux. Herrera les fit ensuite copier pour une de ces Décades. Les " Inca sicuri " font leur entrée en deux groupes, chacun du côté opposé. Chaque groupe porte une litière (ordinairement un vieux fauteuil de sacristie), où est assis un Indien plus paré que les autres. L'un de ces deux personnages représente Huascar, l'autre Atau Huallpa, et ils engagent un duel à la fronde qui dure jusqu'à ce que l'un d'eux se déclare vaincu. Les projectiles sont des racines, qui n'en font pas moins couler le sang quelquefois.

Nous avons essayé de donner une idée de l'une des nombreuses danses publiques des Indiens Aymará de la Bolivie centrale. Cette tentative nous a fourni un prétexte pour parler de l'organisation religieuse de ce groupe d'indigènes américains. Nous croyons devoir ajouter un avertissement spécial. La danse des Sicuri est une danse comparativement moderne, et il y en a de semblables dans beaucoup de tribus. Celui qui veut étudier les coutumes doit donc se garder d'admettre comme anciennes et primitives toutes les fonctions religieuses ou officielles des Indiens qui lui paraissent étranges ou bizarres. Il y a eu et il y a des modifications dans ces cérémonies. Le contact avec les Européens ne peut manquer de produire des changements lents mais constants, il fait tomber en désuétude de certaines mœurs, de certains rites; et d'autres, adaptés aux idées des Indiens et qui par cela-même semblent primitifs, prennent leur place. La Bolivie est un champ fertile pour l'étude de ce qui est originel, des transformations, et des introductions postérieures à la conquête. Il est gros temps de l'exploiter à fond.

SPIELE DER KEKCHI-INDIANER.

VON KARL SAPPER,

TÜBINGEN.

WER sich unter den mittelamerikanischen Indianerstämmen aufhält, der wundert sich wohl oft, wie selten er Spiele irgend welcher Art zu sehen bekommt. Auch bei den Kekchi-Indianern habe ich trotz eines zwölfjährigen Aufenthalts verhältnismässig selten Spiele zu sehen bekommen. Am ehesten noch bei Kindern dann und wann beobachtet man rohgeschnitzte Holzpuppen oder auch primitiv angedeutete Nachahmungen von Karren; ein ander Mal sieht man wohl auch, wie die Knaben ihre Gewandtheit und ihren Mut im Laufen und Ringen mit Altersgenossen erproben; aber meist bestehen die Kinderspiele in Arbeit. Die jungen Mädchen müssen schon im frühesten Alter in Miniaturkrügen Wasser holen und, wie die begleitende Mutter, dieselben auf dem Kopf nach Hause tragen; im Hause selbst aber müssen sie auf spielzeugähnlichen kleinen Mahlsteinen der Mutter Mais mahlen helfen, während der Junge sehr frühzeitig sich übt, Holz zu holen oder Vieh mit dem Lasso einzufangen. Selbst Europäerkinder, die inmitten indianischer Umgebung aufwachsen, kennen manchmal kein grösseres Vergnügen, als kleine Lasten nach indianischer Art mit dem Stirnband (auf Kekchi *tap,* spanisch *mecapal*) zu schleppen. Und wo die Kleinen kaum Zeit und Lust zum Spiele haben, da sind natürlich die Erwachsenen noch weniger dazu geneigt.

Die Ballspiele der alten Zeit, die — vermutlich in stark veränderter Form — bei den Maya des mittleren Yucatan noch fortbestehen, sind bei den Kekchi völlig vergessen, und von den Europäern haben nur etwa die städtebewohnenden Indianer einige Spiele übernommen, so in Coban ein Würfelspiel, das besonders am Tage von Allerheiligen geübt wird.

Draussen auf dem Lande aber kennt man europäische Spiele nicht, dagegen ist dort ein originales Würfelspiel, das Puluc, noch oft in Übung — ein Spiel, das in ähnlicher Weise auch bei vielen andern Stämmen des nördlichen Mittelamerika gespielt wird. Die Würfel sind durch vier flache Maiskörner (*xsi ru*[1] in Kekchi) dargestellt, die auf einer Fläche mit dem Nagel eingedrückt und mit Kohle oder Russ angeschwärzt werden; die andere Seite bleibt, wie sie ist; sie heisst *xalirit.* Zehn gewöhnliche Maisbohnen (*ixim*) werden in einer Linie hingelegt (*xvuè,* ihr Weg); die beiden Spieler haben je fünf Hölzchen (*xchè*) im Besitz. Es wird nun abwechselnd mit den vier Maiswürfeln geworfen; zwei gleichartige Flächen nach oben bedeuten 2, drei gleichartige gelten 3, vier schwarze Flächen (*xsi ru*) gelten 4, vier weisse Flächen (*xalirit*) gelten 5. Die Spieler sitzen einander gegenüber, den Maisweg zwischen sich, und beginnen nach dem Würfeln von ihrer Seite aus mit einem Hölzchen, um die entsprechende Zahl Maiskörner vorzurücken. Kommt der Indianer dabei glatt hinaus, so ist das betreffende Hölzchen gerettet; geht die Zahl nicht auf, so muss mit dem betreffenden Rest wieder von vorn angefangen werden. Trifft der Indianer beim Vorrücken mit seinem Hölzchen auf ein Hölzchen des Gegners, so ist dasselbe gefangen genommen; er sagt nun: *xinkèt* („ich habe es geschlagen") oder: *xincamsí* („ich habe es getötet") und schleppt es beim Weiterwürfeln allmählich rückwärts zum Weg hinaus: sein Gegner hat das Hölzchen verloren. Hat ein Indianer seine fünf Hölzchen verloren, so ist das Spiel aus. *Xatinkè se li tzalam* („ich habe dich ins Gefängnis gesteckt"), sagt dann der Widersacher.

Wer die ruhige, gemessene Art der Indianer kennt, der wird nicht selten Gelegenheit haben, sich darüber zu wundern, wie aufgeregt, selbst leidenschaftlich, die Leute bei diesem manchmal recht lang andauernden Spiel werden.[2]

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[1] Bei Kekchi-Namen ist spanische Orthographie gebräuchlich; *x* wird wie *sch* ausgesprochen.

[2] Otto Stoll schreibt mir hierzu: „Ein ähnliches Würfelspiel sah ich einmal in Los Encuentros von dort übernachtenden Quiché-Indianern spielen. Es waren aber keine Maiskörner, sondern richtige Würfel, die mir auffielen, da sie sehr klein waren und teilweise viele Augen hatten."

Waffenspiele fehlen vollständig. Scheibenschiessen wird nicht betrieben, schon darum nicht, weil die Munition zu teuer ist, als dass sie in solcher unökonomischer Anwendung verbraucht werden dürfte; höchstens zum Zweck der Prüfung eines Gewehres wird dann und wann einmal auf ein vorher gekennzeichnetes Ziel geschossen. Dagegen konnte ich nicht allzu selten beobachten, dass mit Steinen nach bestimmten Zielen geworfen wurde; ich bin aber nicht sicher, ob es sich hier um ein Spiel oder lediglich um eine Übung handelte: der Jagdeifer mancher Indianer ist nämlich so gross, dass sie in Ermanglung anderer Waffen mit ihrem Stock oder mit Steinen auf Vögel werfen, um sie zu töten, und ich erinnere mich, dass sie damit in sehr seltenen Fällen auch ihre Beute zur Strecke brachten.

Bei der Seltenheit eigentlicher Spiele[1] vertreibt sich der Indianer seine freie Zeit meist mit mündlicher Unterhaltung, und es verdient hier hervorgehoben zu werden, dass man manchmal ausserordentlich anschauliche Schilderungen zu hören bekommt. Zuweilen steigert sich die Lebhaftigkeit der Schilderung so sehr, dass der Erzähler Personen und Tiere in Stimme und Gebärden nachahmt, dass also aus einfacher Unterhaltung ein improvisirtes Spiel wird.

Bei grösseren Festen tritt der Tanz in sein Recht; freilich nicht mehr originaler Tanz, sondern nur verballhornte spanische Tänze nach spanischen Melodieen. Daneben aber werden bei allen grösseren Festlichkeiten auch noch dramatische Tanzspiele mit Musik aufgeführt, genau so wie vor der Conquista, nur mit dem Unterschied, dass die christlichen Geistlichen zumeist neue Texte und neue Melodieen an die Stelle der alten gesetzt haben und damit den ursprünglichen Charakter dieser Stücke wesentlich verändert haben. Sie werden gewöhnlich steif und hölzern heruntergespielt und bieten nur dann grösseres Interesse, wenn historische mittelamerikanische Stoffe dargestellt werden oder Tiere redend und handelnd auftreten. Immer aber spürt man bei diesen von den Geistlichen gedichteten oder mindestens überarbeiteten Stücken etwas Eingelerntes, Fremdartiges heraus, und nur dann werden die Tanzspiele zu wirklichen Spielen, wenn die Indianer selbst in Nachahmung jener officiellen Machwerke sich ein Stückchen zurechtlegen und frei aufführen. Ich habe in Campur (Alta Verapaz) am 25. Dezember 1890 ein derartiges Tanzspiel mitangesehen, das zwar absolut unpoetisch war, aber durch die ausserordentliche Naturtreue der Spieler, namentlich seitens des Tierspielers, und durch manche in Gebärden ausgedrückte satirische Anspielungen doch allgemein die grösste Heiterkeit hervorrief, und nachstehend mitgeteilt sein mag.

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[1] Otto Stoll, der ja in Guatemala lange Zeit unter Quichés und Cakchiqueles gewohnt hat, schreibt mir hierüber: „Sicher ist, dass die Spiele in unserem Sinne sehr wenig zahlreich sind und selten gebraucht werden. Daran mag Verschiedenes Schuld sein: Mangel an Zeit, Faulheit, Müdigkeit, Freude am Plaudern, als Ersatz bei Buben das Jagen mit dem Blasrohr, bei Erwachsenen mit der Flinte, die Kirchenfeste, die wochenlangen Vorbereitungen zu den 'bailes' (Tanzspielen), diese selbst; das alles mag mit dem Mangel eines Winters, also einer langen Periode gezwungenen Müssigganges das Bedürfnis nach Spielen weniger aufkommen lassen, als bei uns."

XAJOL CVUACAX POP, DER MATTENRIND-TÄNZER.

MITGETEILT VON DOMINGO CAAL, DAMALS VORARBEITER IN CAMPUR.

PERSONEN.

1. *Xajol cvuacax pop.*[1] Ein leichtes dachähnliches Holzgestell von der Länge eines Rindes ist mit bemalten Matten bespannt; vorn ist ein Ochsenkopf (ein ausgestopftes Mattengebilde mit Hörnern) angebracht, hinten ein Ochsenschweif angenäht. Beim Spiel wird dieses Gerüst von einem unmaskirten Indianer mit beiden Händen über dem Kopf getragen; die Bewegungen eines Rindes werden nachgeahmt.

2. *Ma-Kiricorie,*[2] Gregorio. Schwarze Holzmaske (Neger) mit weissem Haar; schwarzer Gehrock, kleiner Strohhut, alles sehr stark abgetragen. Über dem Rücken trägt er (um die Schultern, nicht, wie indianische Sitte will, um die Stirne gelegt) ein Tragnetz (*champá*) mit einer hölzernen Puppe, ein kleines Kind darstellend (*intyüm,* „mein liebes Kind"). In der Hand trägt er einen Stock.

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[1] *Xajol,* der Tänzer; *cvuacax,* (des) Rindes; *pop,* (aus) Matten.

[2] *Ma-* ist die ehrende Anredeformel, die älteren Männern gebührt; *xan-* die Anredeformel älterer Frauen; *aj-* die junger männlicher Personen; *ix-* oder *x-* die junger Mädchen. Ohne solche Formel wird kein Name genannt. Bei Namen Verstorbener wird noch *-ilk* angehängt, z. B. *Ma-Lix Pop-ilk,* d. h. der alte Andres Pop selig (*pop,* „Matte").

3. *Xan-Xabel,* Isabella. Indianisch gekleidete ältere Frau mit hellfarbiger Maske und Agave-Haaren. Von einem Manne dargestellt.

4. *Chip,* der Sohn; ein junger Mann mit abgetragenem schwarzem Rock, roten Beinkleidern, kleinem abgegriffenem Strohhut; trägt einen Lasso um die Schulter.

Der Alte, die Alte und der Sohn sind barfuss; alle drei hinken auf dem rechten Fuss; die Reihenfolge, in der sie stehen und gehen, ist stets 2, 3, 4.[1]

Die Musikbegleitung wird von einen Indianer ausgeführt, der mit der rechten Hand eine kleine Trommel schlägt, mit der linken eine lange, zweilochige Holzpfeife von Flageolettform spielt. Einförmige Melodieen.

HANDLUNG.

Das Rind-Gerüst wird in die Mitte des Platzes gestellt; 2, 3 und 4 umgehen dasselbe mit kurzen Schritten, „hèhü, hèhü“ rufend. Darauf ergreift ein Indianer das Gerüst und läuft im Kreis umher, während alle drei ihm hinkend nachlaufen. An einer Ecke des Platzes stellen sich die drei Personen auf: 2 und 4 pfeifen und winken mit den Hüten, die alte Frau schwenkt ihren Stock noch vorwärts. Das Rind läuft vor ihnen hin und her und stösst schliesslich mit den Hörnern; die drei Personen ducken sich, das Rind läuft weiter.

Ma-Kiricorie.	Chabonúak	cuenta,	Xabel,	ba	t'camsi
	Habe	Acht	Isabella	nicht	möge (dich) töten
	li kaxul,	kaxal josk.			
	unser Tier;	sehr böse (ist es).			
Xan-Xabel.	Incá taṇa,	hoon nacvuil	hit	hoon.	
	Wohl nicht,	ich werde mich	schon	vorsehen.	

Darauf laufen alle drei wieder dem Rinde nach; an den drei anderen Ecken des Platzes wiederholen sich dasselbe Schauspiel und dieselben Worte. Darauf sagen die beiden Alten zum Jungen: —

	Chip,	chap	li kaxul.
	Sohn,	fange	unser Tier!
Chip.	Us.		
	Gut!		

---

[1] Die indianische Sitte verlangt, dass sich beim Gehen mehrere Personen in der Weise anordnen, dass stets die angesehene Person vor der minder angesehenen kommt. Stets wird Gänsemarsch eingehalten.

Er wirft den Lasso nach den Hörnern; das Rind sucht durch geschickte Sprünge zu entweichen.

Xabel. K'a put tacvuè ruquin lin xul ma? laj
Was denn tuest du mit meinem Tier? (Fragepartikel) (ist's) denn
acvuè? nak tachè.
deines, dass du (es) anfassest?

Chip. Inc'a cvua chic naj quèrip; kaxal josk.
Nicht also wieder will es sich (fangen) lassen; sehr böse (ist's).

Ma-Kiricorie. Hin tyalak ulin najnau vi k'ū chius an,
Ich werde (es) versuchen, ich! Es kennt ja unser Gesicht gut
ut ta.[1] Xinchap ajcvui, ha Chip! ya toj ma
gewiss! Ich habe gefangen (es) auch o Sohn! —?— noch nicht
nicanau chius canok.
weisst du gut zu fangen.

Chip. Nanau aj va cvui; tyalá, la cvuú x sotó.
Ich weiss (es) auch; gewiss, deine Augen sind verdorben.

Xabel. Kaxal xul la cvualal, ha ajcvui, la xulil
Sehr ein Tier (ist) dein Sohn, gewiss, deine tierische Natur
quixcam.
hat ihn erfasst.

Ma-Kiricorie. K'a ajlok chak'u quik'i.
Wie du ihn gebarst, ist er geworden.[2]

Xabel. Chik'ú van ha k'uquin, k'alal ha k'uquin.
Von uns beiden ist er. Unser Sohn (ist er), unser beider.

Die beiden Alten. Acré tana nak quik'í kaxal xul
Schlimm ist er vielleicht,[2] denn er ist geworden sehr (zum) Tier;
chan tei ru nanrap, ink'a cvui narú. Ink'a vi
so viel ich (ihn) schlage, nicht wird er gut. Nicht
naxicvua li kaxul; humpat naj chap!
fürchtet sich unser Tier; schnell fange (es)!

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[1] Meist hört man dafür im jetzigen Sprachgebrauch: *ut-an.* Auch sonst entspricht manche Redewendung nicht ganz dem gewöhnlichen Sprachgebrauch.

[2] Wörtliche Übersetzung zu geben, ist mir bei dieser Stelle nicht möglich.

Das Rind wird nun gefangen und zu Boden geworfen; der Träger schlüpft hinaus und lässt das Gestell liegen. Die drei Personen hocken sich nun auf die Erde; der Alte nimmt die Holzpuppe heraus, und alle spielen nun mit ihm unter derben improvisirten Spässen.

Die Drei.	Kaxaj-tasak	nikayum.
	Wir wollen tanzen machen	unser Kind!

Ma-Kiricorie, *Xabel*	Chè cvuilak	la	cvuitzin	nak	naxajok.
(zum Chip).	Siehe	deinen	jüngeren Bruder,	wie	er tanzt!

Nach einer Weile ergreift ein anderer Indianer das Holzgerüst mit der Rindsmaske, und das Spiel beginnt von neuem. Der Hauptreiz für die indianischen Zuschauer beruht in der möglichst grossen Naturtreue der Tierbewegungen, und der Wechsel der Tierdarsteller macht die Aufführung zu einem echten Spiel.

THE ASTRONOMICAL METHODS OF THE ANCIENT MEXICANS.

BY ZELIA NUTTALL.

A WELL-KNOWN picture contained in the Codex Mendoza (Fig. 9, No. 1) represents a seated high-priest, whose vision is naïvely but graphically directed upwards to the symbol of the nocturnal heaven, consisting of a black semicircle which is studded with a number of eyes, i.e., stars. The commentator explains that the individual in question "is watch-

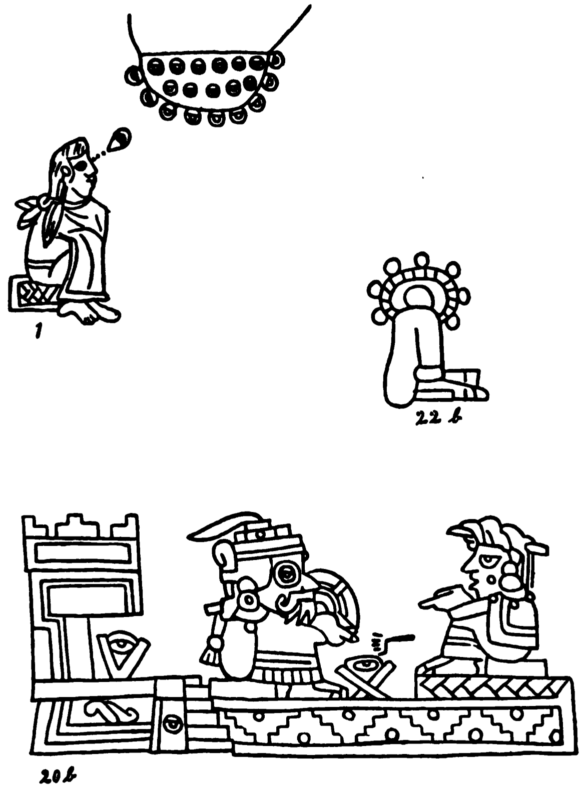

Fig. 9.

ing the stars at night, in order to know the hour, this being his particular function" (KINGSBOROUGH, Vol. v, p. 101). The above evidence, and the quaint statement on the previous page that the high-priest was "the clock-man by means of the stars of heaven," are corroborated by TEZOZOMOC's testimony. His "Cronica" (p. 574) contains a version of the solemn oration that was addressed to Montezuma the Younger after his election. In this he was exhorted not to neglect what is described as his most important duty; namely, to rise at midnight and to offer incense to certain principal stars. It was, moreover, customary for the priesthood in general to offer burning incense to the stars "after dusk, at about 3 A.M., and immediately before dawn," these divisions of time being marked by the sounding of drums or trumpets in the temples. While several authors have stated that the astronomer-priests of ancient Mexico habitually employed not only their pyramid temples, but also their ball-courts, as observatories, no one seems as yet to have bestowed especial attention upon a series of pictures contained in the Codices, which, however, furnish valuable evidence as to the *modus operandi* evolved by the native observers.

While the Codex Mendoza illustration merely shows an observer seated in the open air, the following eight pictures reveal that, as in the Old World, the ancient astronomers observed certain stars from a dark cell or chamber through the open doorway of their temples, which were invariably situated on an elevation. In Fig. 10, Nos. 2 and 3 (Borgian Codex, pp. 49 and 60), we have two instances of open doorways, in the centre of each of which a single star is figured. In the second of these illustrations, next to the temple, there is a circular symbol equally divided into two parts, one representing the nocturnal heaven; the other, the sun, or day. This symbol, which so clearly records an equal division of night and day, — i.e., the equinoctial period, — is supplemented by another sign, placed below the temple, which is frequently found employed to represent a great star or planet. In No. 4 (Fejervary, p. 34) twin-stars are figured in the doorway. Nos. 5 (Bologna 1), 6, and 7 (Vienna 8), as well as Nos. 8 and 9 (Vienna 41 and 6), exhibit doorways drawn in profile, this being the common conventional mode adopted by the native artists in their representations of temples. In Nos. 5, 6, and 7 a single star, in No. 8 an image of the sun, and in No. 9 a peculiar recurved sign studded with stars, and obviously representing a constellation, respectively occupy the doorway.

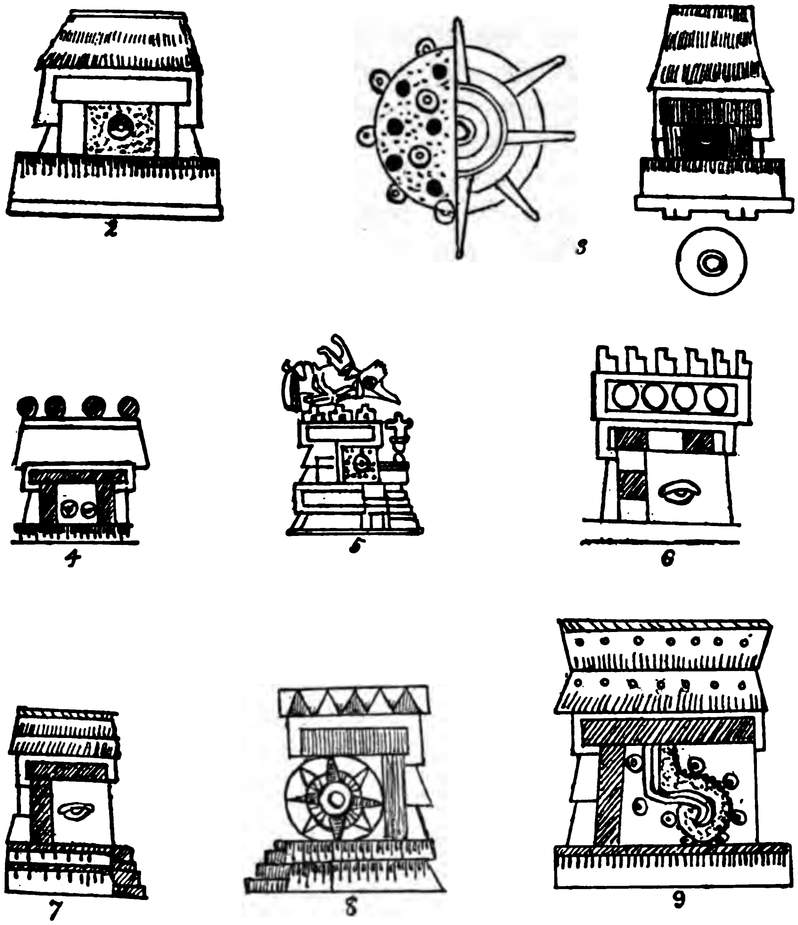

FIG. 10.

The indications furnished by the above native drawings are that some temples were oriented not only to the rising or setting sun, but also to certain stars or constellations whose appearance in the centre of the doorway signified an exact date or period of the native year. The interesting fact that the Mexican astronomers did not confine themselves to observing the periodical shining of celestial bodies through openings in buildings, is revealed by the series of drawings which demonstrate the use of ingenious devices admirably adapted for the exact registration of the positions of stars.

Fig. 11, No. 10 (Vienna 7), represents a temple, on the roof and in the doorway of which rows of forked or bifurcated stakes are erected. The purpose for which this was done is revealed by the picture of a small temple No. 11 (Bodleian 28) which is unquestionably designated as a "star temple" by the three stars attached to its back wall. On its roof we perceive the conventional sign for "star" lodged in the bifurcation of a stake, the same combination recurring in Nos. 13 (Selden 14), 12, and 14 (Bodleian 32 and 15). No. 12 is of particular interest, because the temple walls and roof are studded with six stars, and a human face or mask is depicted in the act of peering out of the doorway, in front of which cross-sticks are set up. No. 14 is equally instructive; for besides exhibiting, as in No. 13, a star lodged in the triangle formed by the forked stake erected at the summit of the temple stairway, it shows a large star resting on the roof exactly between the terraced corners of the edifice. A conventionalized four-petalled flower is painted on the lintel of the temple door. A proof that this was the actual sign for a certain star is furnished by No. 17 (Bodleian 16), which exhibits this identical flower on the band studded with stars, denoting the nocturnal heaven. In No. 15 (Bodleian 17) the same star-band is painted above a footprint directed downwards, in proximity to a seated figure accompanied by day and year signs. While it is possible that this iconomatic sign may have expressed the word *Citlal-temoc* ("descending star"), this being the name of the individual, it is not impossible that it may have recorded the setting of some particular star on the date recorded. A similar footprint directed away from the temple in No. 14 (Bodleian 15) suggests that the doorway may have faced the east, that the footprint referred to the setting of the "Flower" star or of the adjacent constellation which figures in the original. No. 22 (Bodleian 6) furnishes another instance of the combination of the Flower sign, a star symbol, and of a footprint directed downwards. In this case the edifice associated with these signs is like a flat terrace, on the top of which is a curious device which not only resembles the drawn-up limbs of a seated human figure, but

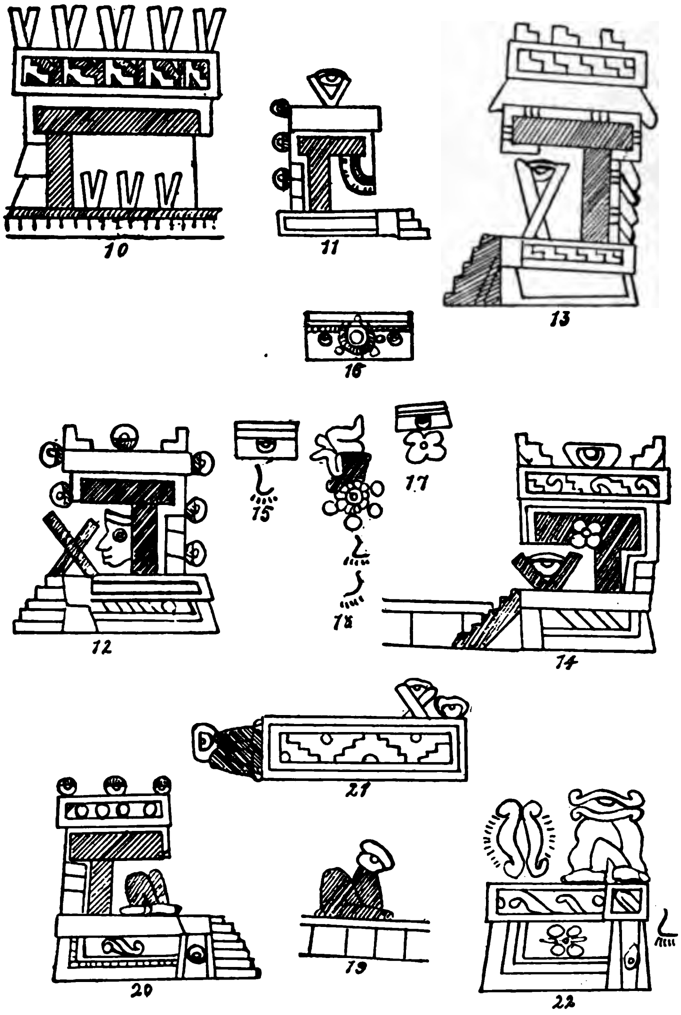

FIG. 11.

actually represented these, as proved by No. 23 (Bodleian 36), in which the human foot and sandal are clearly delineated. This device appears to have served the same purpose as the bifurcated stakes; for, surmounted by a star, it figures in temple doorways, etc., in the same way as the latter. In No. 21 both devices are represented together in identical connection with stars, in the same illustration.[1] The "knee-sign" also recurs in the doorway of the temple No. 20 (Bodleian 16), which also displays three stars on its roof, another on the wall near the stairway, and a constellation sign in a panel. The same codex (p. 20) contains a similar temple (Fig. 9, No. 20 b), but, in the place of the knee-sign, the bifurcated stake, with a star resting in its fork, occupies the doorway. In front of this star-temple, on a panel decorated with a geometrical design, are seated, opposite to each other, a priest exhibiting the mask of the rain-god and the emblem of the sun, and a woman, presumably a priestess. As in a number of instances contained in the same codex, both personages are pointing to the star in the forked stick which rests between them. A footprint painted above the star, and directed towards the temple, may have conveyed the fact that the latter faced the east, whence the star appeared to travel towards its doorway. It is noteworthy that, whereas in Fig. 11, Nos. 21 and 22, a star is figured as resting on both knees, No. 19 (Bodleian 22 a) exhibits a star poised on one knee only, the knee-sign and star being also situated between the seated figures of a man masked as an ocelot and a woman.[2] In Fig. 9, No. 22 b, a star-circle or constellation identical with that depicted in Fig. 11, No. 16, is likewise represented above a single knee.

While the above data establish the fact that the forked staffs and the peculiar knee-figures were equally employed to register the positions of stars (presumably with differences of meanings known to the initiated), there exist a few pictures which appear to indicate the use of rows of upright stakes, such as are represented in Fig. 12, No. 24 (Selden 9). There is, however,

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[1] The homonymy of the first syllable of the Nahuatl word for "knee" (*tlanquaitl*) and the word for "below or underneath" suggests that, in connection with stars, the knees may have been adopted as an iconomatic sign expressing their periodical disappearance.

[2] In this connection it is interesting to note that the Nahuatl word signifying "on the knee" is *tlanquaticpac*, which can be read as a homonym conveying the meaning "on the summit or head of the earth or land."

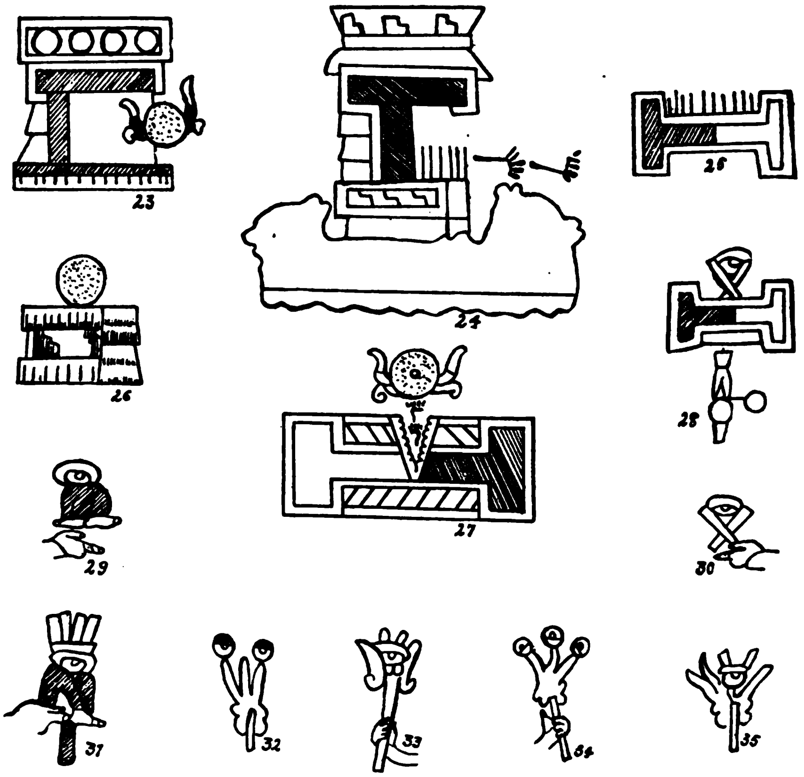


Fig. 12.

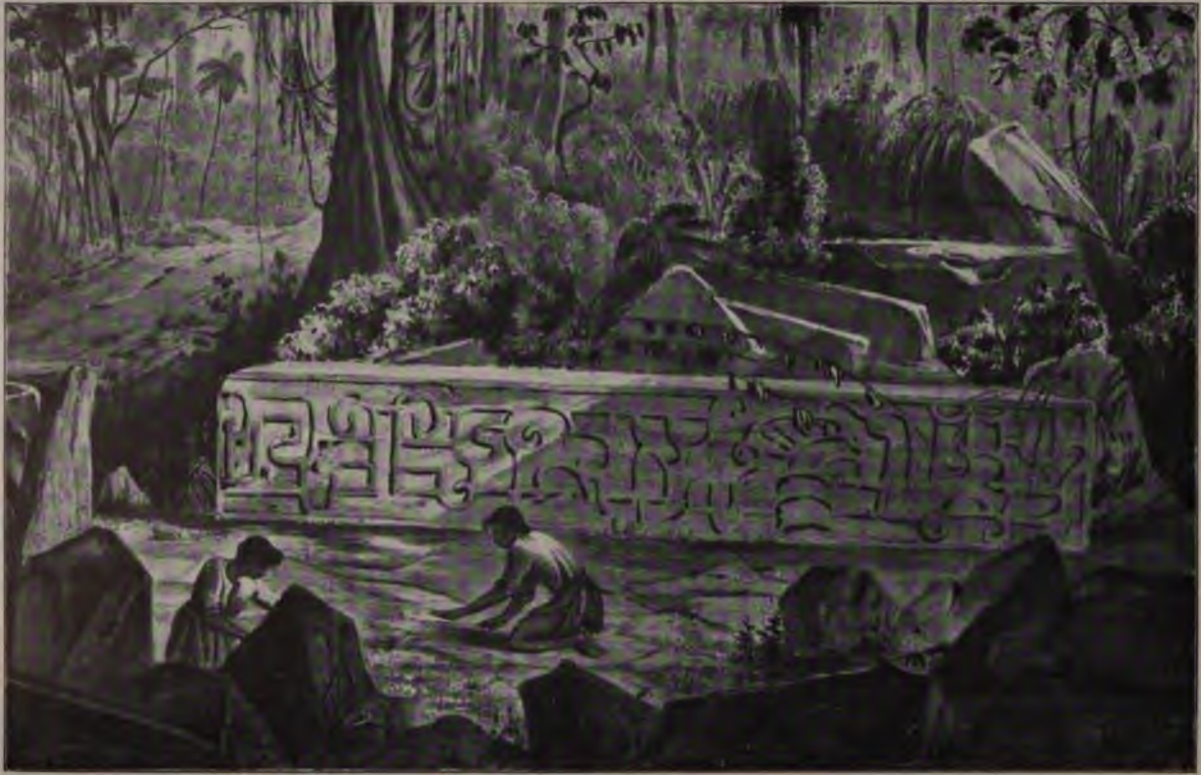
the possibility that the row of perpendicular lines signified the numeral *tzontli* ("four hundred"), which the native scribes recorded by various representations of its homonym *tzontli* ("hair"). In either case the perpendicular "sticks" or "hairs," and the footprint beside them, appear to bear direct relation to the conspicuous constellation depicted immediately behind the temple, which is situated on the conventional sign for "mountain." Whether the lines denoted hairs and recorded the number of times the star was observed to move away from the temple, or whether they represented a device for observing its course, they are equally interesting. The latter interpretation is encouraged by the fact that p. 5 of the Selden MS. presents two instances of their use in exactly the same positions as the bifurcated stakes; namely, on the top of one of the side-walls of the native ball-court. The ground-plan of this, shaped like a double *tau,* constitutes the familiar sign for the word *tlachtli,* which signified the game of ball as well as the court in which it was played. Fig. 12, No. 25, reproduces one of the two *tlachtlis* figured with the row of perpendicular lines. No. 28 reproduces the second of the two *tlachtlis* on the same page, which exhibit, on the same wall, bifurcated stakes with stars. In this case the *tlachtli* is accompanied by the calendar-sign one *acatl* ("cane"); in the other, by the day-sign one *coatl* ("serpent"). Further evidence proving that the same side-wall was employed for astronomical observations, and that particular note was made of the time when a certain star rose behind its exact centre, is furnished by No. 27 (Vienna 19). This positively demonstrates, moreover, that the star observed in its case was the *Citlalpul* or *Huey citlalin* ("the Great or Ancient Star"), the planet Venus, as morning star. Its sign is rendered here as a large dish with two wing-like appendages, which represent its radiance or light, the intention being to depict the planet at its period of greatest brilliancy. According to SAHAGUN's Laurentian MS., "when this star made its appearance in the east, they sacrificed captives in its honor and offered blood, fillipping it with their fingers towards the star." No. 23 seems to furnish proof that the heliacal rising of the planet was also observed through the doorways of temples oriented to the east. The planet, minus the wing-like appendages, i.e., at a different period of its revolution, is figured in No. 26 (Vienna 39), on the top of a truncated pyramid (cf. Fig. 11, No. 22).

Attention is finally drawn to the curious fact that in the Bodleian and Selden MSS., the contents of which mainly deal with astronomical phenomena and festivals, a number of personages, usually associated with other star-signs, are represented as holding in one hand the forked stakes and star or the knee-figure and star Nos. 34, 29, and 30 (Bodleian 19). In other cases they hold what appear to be symbolical sceptres, probably pertaining to periodical star festivals. Many of these exhibit one, two, or three stars placed between, as in Nos. 32 and 35 (Bodleian 17), or on the tips of the two or three pointed sceptres, as in Nos. 31 and 33 (Bodleian 17).

It would carry me too far to discuss here the numerous instances in which the forked stick and star are represented on the backs or heads of certain animal and bird forms under which the ancient Mexicans figured some of their principal constellations. Although the foregoing illustrations constitute merely a part of the material I have been collecting on the subject, they will suffice to establish beyond a question the hitherto undemonstrated fact that the ancient Mexicans not only employed their carefully oriented temples and ball-courts as astronomical observatories, but also invented ingenious devices for accurately registering the periodical appearances or disappearances of important celestial bodies.

The above material would be wofully incomplete, however, if no mention were made of the existence of documentary evidence — furnished by Friars Duran and Motolinia, the historian Ixtlilxochitl, the Anonymous Author of the Biblioteca Nazional MS., and other writers — proving that the Mexican sun-priests were acquainted with the use of the gnomon, and possessed an accurate knowledge of the equinoxes and solstices.

One aim of this brief monograph will be attained if it establishes, that in pre-Columbian America, as in the Old World, countless generations of men spent wakeful nights in silence and solitude, patiently, earnestly studying the heavens, and, seized by an awakening spirit of scientific research, resorted to the systematic and exact observations and registration of the movements of celestial bodies. The actual purpose of the present communication will, however, be fulfilled only when, by its presence in this festive volume, it shall yield testimony of my high esteem for my honored colleague Dr. Franz Boas, and of my sincere appreciation of the great and permanent value of his scientific contributions.



SCULPTUR VON MAPILCA (NACH AQUARELL VON CARLOS NEBEL).

EINE STEINFIGUR AUS DER SIERRA VON ZACATLAN.

VON EDUARD SELER.

UNTER den Landschaften des alten mexikanischen Kulturgebiets nehmen der atlantische Abhang des Hochlandes und die Hügel und Flachländer der Golfküste eine besondere Stellung ein. Von Urstämmen bewohnt, die zum Teil noch bis heutigen Tags ihre ethnische Besonderheit sich gewahrt haben, klimatisch von den dahinter gelegenen Hochlandgebieten sich scharf unterscheidend, zeigen sie uns auch eine besondere Facies der Kulturentwicklung. Das spricht sich denn auch in ihrem Kunststile aus, der, trotz vielfacher Durchdringungen mit Elementen des Formenstils des Hochlandes, sowohl in der Form und dem Charakter der Stücke, wie in ihrer Ornamentation, ein eigenes Gesicht trägt.

Was die Kleinkunst, insbesondere die Keramik, betrifft, die ja in den allermeisten Fällen der einzige Zweig der Kleinkunst ist, dessen Erzeugnisse den Einflüssen des Klimas und dem Wechsel der Zeiten standhielten, so haben hier die Ausgrabungen HERMANN STREBEL'S[1] für einen grossen Teil des Gebiets, die ganze centrale, zwischen dem Rio de Nautla (im Norden), dem Rio Papaloapan (im Süden) gelegene Zone, in ausgiebiger Weiser Klarheit geschaffen. Wir wissen jetzt, dass in diesem Gebiete zum mindesten vier Kulturgruppen zu unterscheiden sind, die ohne Zweifel einer ethnischen Sonderung entsprechen. Die beiden ersten werden in der nördlichen Hälfte des Gebiets und zwar unmittelbar neben einander angetroffen und von Strebel als *Cerro Montoso* und *Ranchito de las Animas* Typus unterschieden. Die beiden andern umfassen die südlicheren Fundorte am Rio de Cotastla und bis zum Papaloapan. Als der eigentlich einheimische Kunststil in dem nördlichen Teile des Gebiets dürfte der von *Ranchito de las Animas* zu betrachten sein. Denn der Cerro Montoso Typus ist augenscheinlich durch den Stil des benachbarten Hochlandes stark beeinflusst und ihm nahe verwandt.

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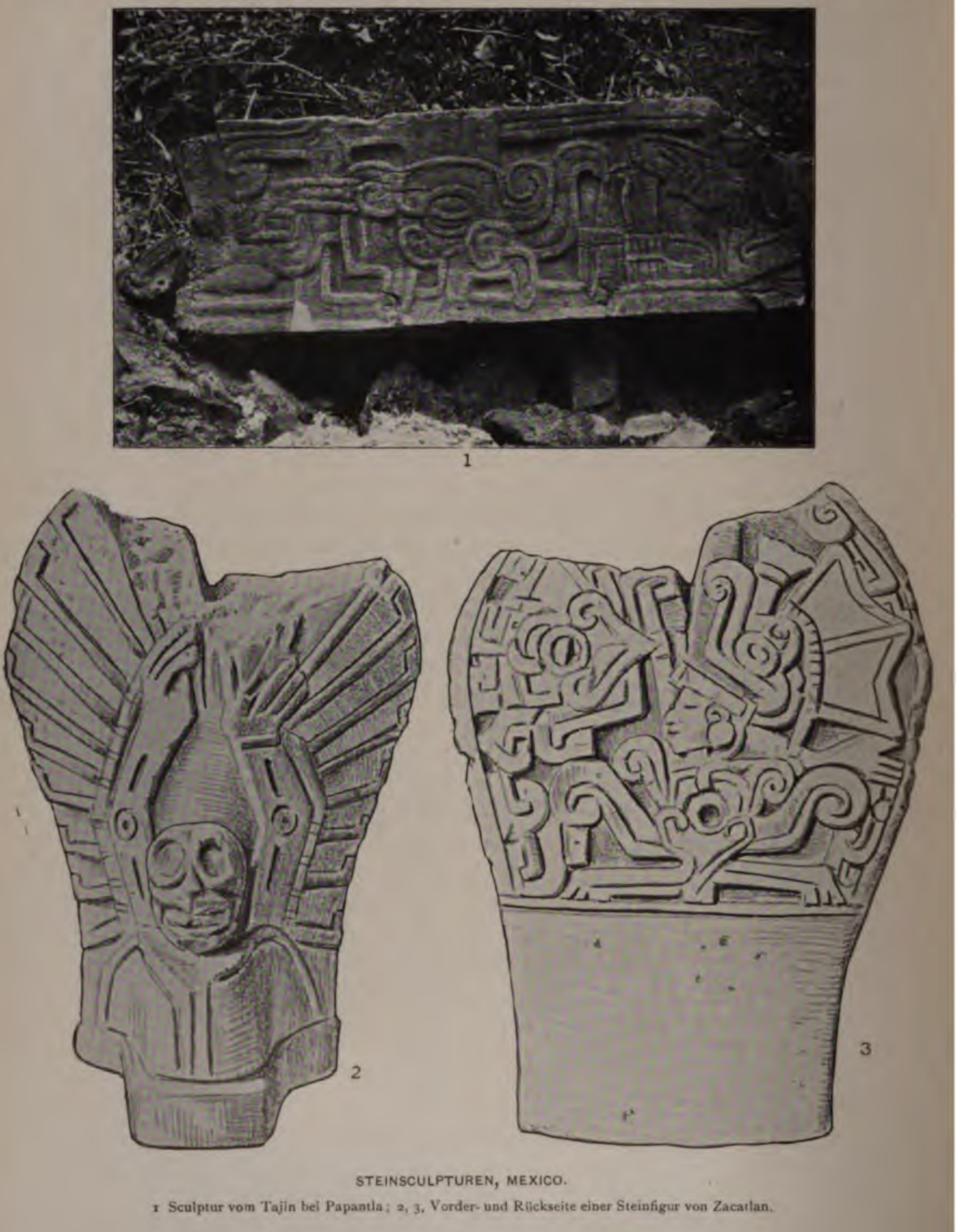
[1] HERMANN STREBEL, Alt-Mexiko, Archaeologische Beiträge zur Kulturgeschichte seiner Bewohner, I, II, Hamburg und Leipzig, 1886 und 1889. Derselbe, Über Thierornamente auf Thongefässen aus Alt-Mexiko (Veröffentlichungen aus dem K. Museum für Völkerkunde, VI, Heft 1, Berlin, 1899). Derselbe, Über Ornamente auf Thongefässen aus Alt-Mexiko, Hamburg und Leipzig, 1904.

Auffallendere Besonderheiten treten uns in dem Stile der grösseren Monumente und der kostbareren aus Stein gefertigten Werkstücke entgegen. Was die grösseren Monumente betrifft, so sind dem nördlichen Teile der atlantischen Küste die Pyramiden eigentümlich, bei denen die aufsteigenden Wände der Stufenabsätze mit Nischen verziert sind. Das berühmteste Beispiel dieser Art ist der *Tajin* bei *Papantla.* Das Vorkommen jener Pyramidenform an dieser Stelle gestattet uns zugleich, es als wahrscheinlich anzunehmen, dass das eine Eigenheit der *totonakischen* Architektur war. Denn in Papantla befinden wir uns noch heutzutage mitten im Totonakengebiete. Dieselbe Eigentümlichkeit zeigt auch, wie ich aus einer von Miss ADELE BRETON aufgenommenen und mir gütigst zur Verfügung gestellten Photographie ersehe, die jetzt allerdings zum grössten Teile in Ruinen liegende Pyramide von *Yohualliche* im Distrikte *Zacapoaxtla,* die ohne Zweifel auch dem alten Totonakengebiete angehört.

Von Gegenständen, die aus Stein gefertigt sind, gehören aller Wahrscheinlichkeit nach in dieses Gebiet die merkwürdigen sogenannten *Steinjoche* und die dreieckig prismatischen, oben in der Regel flach und breit ausladenden Werkstücke, die man als *Palmas* bezeichnet hat.

Die bekannten Formen der Steinjoche hat HERMANN STREBEL im III. Bande (1890) des Leidener Internationalen Archivs zusammengestellt. Weitere drei Exemplare sind von Dr. ERNST (Carácas) im V. Bande (1892) derselben Zeitschrift beschrieben worden. Und diesen hat dann HERMANN STREBEL im VI. Bande (1893) noch zwei andere Stücke hinzugefügt. Diese Joche, wie sie ihrer Form nach mit einigem Rechte genannt werden, — richtiger wäre es, sie Hufeisen zu nennen, — sollten nach der Meinung verschiedener Archäologen bei dem Opferritus eine Rolle gespielt haben. Dazu waren sie aber wegen ihrer Grösse und Schwere in keiner Weise tauglich.



STEINSCULPTUREN, MEXICO.

1 Sculptur vom Tajin bei Papantla; 2, 3, Vorder- und Rückseite einer Steinfigur von Zacatlan.

Als schön gearbeitete und zum grössten Teil aus guten Gesteinsarten gefertigte Stücke, sind sie zweifellos vielfach verschleppt worden. Wenn man aber die Fundangaben durchsieht, soweit sie zuverlässig erscheinen, so tritt doch klar hervor, dass ihre eigentliche Fabrikations- und Fundstätte der atlantische Abhang war, and zwar kann man als das Centrum ihres Vorkommens das alte *Totonakengebiet* bezeichnen. Von dort scheint die Sitte der Verwendung dieser Stücke sich einerseits nach der Richtung von *Huamantla* und *Tlaxcala,* andererseits auf der alten Handelsstrasse nach *Tabasco* und bis nach *Guatemala* und *San Salvador* verbreitet zu haben. Dass diese Joche aber in dem Totonakengebiete ihre eigentliche Heimat haben, dafür spricht nicht nur, dass die Mehrzahl der beglaubigten Stücke in der Tat dieser Region angehört, sondern auch der Umstand, dass der eigenartige Stil ihrer Ornamentation seine genaue Parallele in Sculpturen unzweifelhaft totonakischer Herkunft, in Werkstücken vom *Tajin* bei *Papantla* (Plate XXV, Fig. 1) und in dem grossen Steine von *Mapilca* im Distrikte *Zacapoaxtla* hat, den ich hier (Plate XXIV) nach dem Aquarelle CÁRLOS NEBEL's wiedergebe.

Über die Bedeutung dieser Joche hat man viel debattirt. Ausser Zweifel steht, dass sie nicht aufrecht zu stellen sind, sondern dass sie flach am Boden lagen. Das geht aus der Verteilung der Ornamentation, die, mit Ausnahme weniger Stücke, nur die äussere Bogenseite, und bei flacher Lagerung, die nach oben kommende Seite bedeckt, auf das klarste hervor. In zwei Fällen, in einem von HABEL aus *San Salvador* berichteten Vorkommen und in einem bei den Ausgrabungen STREBELS in *Ranchito de las Animas* (bei Cempoallan im Staate Vera Cruz) constatirten Funde, ist nachgewiesen worden, dass diese Stücke in Gräbern *bei der Leiche eines vornehmen Toten* vorkamen. Nach dem Befunde an diesen beiden Stellen, dessen Einzelheiten man in der Arbeit Strebels nachlesen mag, will es mir scheinen, dass diese kostbaren Stücke dazu gedient haben, das die Leiche eines Fürsten enthaltende Bündel auf dem Boden des Grabes in aufrechter Position zu fixiren. Dem würde auch die Ornamentation entsprechen. Denn diese Steinjoche stellen, soweit sie nicht einfach ausgestreckte Arme auf den Schenkeln des Joches zur Ansicht bringen, entweder einen platt auf dem Boden liegenden *Frosch,* bezw. Froschmenschen, dar, damit das Tragen und vielleicht zu gleicher Zeit die Erde, die das Mumienbündel trägt und in sich aufnimmt, zum Ausdruck bringend. Ein schönes Stück der Becker'schen Sammlung[1] zeigt innerhalb der Elemente der Froschfigur noch eine Ornamentation ausgestreckter Skelettarme. Oder aber diese Joche stellen einen *Adler* dar,[2] oder einen Menschen in Adlermaske. Sie dürften entweder als ein Abbild der Sonne zu betrachten sein, oder als das Tier, das die Seele des Toten in den Osthimmel, zur Sonne, trägt. Für die wenigen andern Fälle, wo ein anderer Grundtypus der Ornamentation vorliegt, wird sich vermutlich auch aus verwandten Vorstellungen ein Schlüssel finden. Auch die seltenen Stücke, bei denen die Öffnung der Schenkel durch ein Querstück geschlossen ist, — das Museum für Völkerkunde in Berlin besitzt ein solches; zwei andere gehören dem National Museum in Washington und dem Field Columbian Museum in Chicago an, — lassen sich auf Grund meiner Hypothese von der Bedeutung dieser Stücke verstehen. Das Exemplar des Berliner Museums hat auf dem Querstücke ein en face-Gesicht, das Strebel durchaus richtig als *Greisengesicht* deutet. Das Flachrelief der äussern Bogenseite zeigt, wie uns auch Strebel zuerst gelehrt hat, ein ausgestrecktes *Kaninchen* mit gefesselten Vorder- und Hinterfüssen. Man kann darnach vermuten, dass dieses Joch als Abbild des Mondes gedacht ist.

Vielgestaltiger und zum Teil noch rätselhafter sind die Werkstücke, die ich oben als *Palmas* bezeichnete. Aber dass auch sie ihre hauptsächliche, ja eigentliche Verbreitung im alten Totonakengebiete haben, ist sicher. So finden wir denn auch bei ihnen dieselbe eigenartige Ornamentation mit verschlungenen oder in Voluten sich auflösenden Bändern wie auf den Sculpturen vom Tajin und von Mapilca. An der Basis haben alle eine Auskehlung, die entweder scharfwinklig oder gerundet ist. In dem ersten Falle entsteht leicht die Vermutung, dass es Werkstücke waren, die als Architekturteile in eine Stein- oder Mörtelwand eingesetzt waren. Nach Form und Beschaffenheit der Auskehlungen meine ich indes für den grössten Teil der in Betracht kommenden Stücke diese Vermutung abweisen und auch für sie annehmen zu müssen, dass die Auskehlung dazu diente, sie in bestimmter, senkrechter oder geneigter, Position auf einem Podium aufzustellen.

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[1] Internationales Archiv für Ethnographie, Band III, Tafel VII, Fig. 26.

[2] Vergl. das Stück der Hackmack'schen Sammlung, das STREBEL im Internationalen Archiv, Vol. III, Tafel V, Fig. 12, abbildet.

Verschiedene dieser *Palmas* stellen Vögel dar. In einigen kann man einen Adler erkennen, aber auch langschnäblige Vögel, und auch als Skelette gezeichnete Vögel. Letzteres zeigt z. B. ein schönes Stück der Becker'schen Sammlung, das aus *Teciuhtlan* stammt. Bei einem andern Stücke, das aus der Sammlung des Münzkabinetts in das Naturhistorische Hofmuseum in Wien übernommen worden ist, sieht man auf der Vorderseite die schön ausgearbeitete Figur eines Truthahns, auf der flachen Rückseite, in flachem Relief, ein en face dargestelltes Eulengesicht. Noch andere Stücke haben die Gestalt des *Quetzalcoxcoxtli,* des mit Scheitelfederkamm versehenen Waldhuhns der *Tierra caliente,* das die Verkleidung oder andere Gestalt *Xochipilli's* des Gottes der Morgendämmerung, des jungen Gottes der Zeugung und der Lebensmittel, bildet. So ein Stück der Strebel'schen Sammlung, das aus *Quimistlan* stammt. Ein anderes, das in Mexico sich befindet und in *Tetela del oro,* ebenfalls am atlantischen Abhange, gefunden worden ist, zeigt ein Gesicht, das aus dem Schnabel eines Vogels mit Scheitelfederkamm hervorsieht. Und drei der prachtvollen Stücke, die der Gobernador des Staates Vera Cruz, D. Teodoro Dehesa, in seiner Sammlung besitzt, und die aus einem Hügel zwischen *Coatepec* und *Jico* ausgegraben worden sind, scheinen einfach einen solchen *coxcoxtli*-Scheitelfederkamm wiederzugeben. Einige Stücke der Strebel'schen Sammlung haben die Gestalt einer Fledermaus; ein anderes die eines Insekts. Und eines der Dehesa'schen Exemplare zeigt vorn den Rücken, hinten die Bauchseite, eines mit weitgeöffnetem Rachen von oben herunterkommenden Krokodils. Andere haben auf der Vorderseite die aufrechte Gestalt eines Menschen oder Gottes mit hohem Federkopfschmuck und hinten Relieffiguren oder Ornamentverschlingungen. Noch andere sind vorn und hinten mit bandartig sich verschlingenden, sich in Voluten, Rauchwolken oder dergleichen auflösenden Ornamenten bedeckt.

Es wäre ein vergebliches Bemühen, durch einfache Beschreibung eine Vorstellung von der Fülle und der Vielgestaltigkeit der Figuren und der Ornamente, die auf diessen Werkstücken vorkommen, geben zu wollen. Es sei mir hier nur gestattet, ein Stück näher zu beschreiben, das ich im Jahre in *Zacatlan* erworben habe, und das aus dem Dorfe *Jonotla* im Distrikte Zacatlan stammt. Ich gebe die Vorder- und die Rückseite in Figs. 2 und 3 (Plate xxv) wieder. Das Stück zeigt, wie man sieht, auf der Vorderseite (Fig. 2) Kopf und Brustkasten eines Skeletts, dessen flügelartig mit Schwungfedern besetzte Skelettarme, über dem Kopfe emporgehoben, die obere breite Ausladung des Werkstückes bedecken. Auf der flachen Rückseite (Fig. 3) sieht man ein Relief, das leider nicht mehr in seiner ganzen Ausdehnung erhalten, aber doch in seinen wesentlichen Teilen deutlich ist. Man erkennt leicht zur Rechten ein Profilgesicht und einen nach hinten gestreckten Arm. Über dem Profilgesichte, ebenfalls in Profil, einen Tierrachen, aus dem das Menschengesicht gewissermassen hervorsieht, der dessen Helmmaske oder Verkleidung bildet. Dieser Tierrachen ist natürlich sehr conventionell gezeichnet. Man wird ihn wohl als den eines Vogels betrachten müssen, und das fächerartige Gebilde darüber als einen Nackenkragen oder einen Scheitelkamm. Der in der Gestalt des *Quetzalcoxcoxtli* erscheinende Gott, der an diesem ganzen Küstenabhange viel verehrt wurde, — das beweisen die zahlreichen Steinbilder, die von ihm gefunden wurden, — scheint auch hier dargestellt zu sein. Dieser Gott erscheint aber hier über einem, tief aus dem Steine gebohrten Auge, das den Kern einer blumenartigen Figur bildet, die — wie es in den mexikanischen Bilderschriften nicht selten dargestellt wird — sich unmittelbar mit Wurzeln an den Boden heftet. Und dieses ganze blumenartige Gebilde, mit dem tief aus dem Steine gebohrten Auge in der Mitte, ist, um 90° gedreht, noch einmal auf der linken Seite vor dem Gesichte des Gottes angegeben. Diese Begleitdarstellungen scheinen meine obige Bestimmung zu bestätigen und zu ergänzen. Denn der in *Quetzalcoxcoxtli*-Maske erscheinende Gott führt ja den Namen *Xochipilli,* der „Blumenprinz." Ich habe in dem kurzen Berichte über unsere damalige Reise erwähnt, dass ich in dem benachbarten, an *Zacatlan* grenzenden Distrikte *Huauhchinango,* bei der Stadt *Jicotepec,* unmittelbar vor ihren Thoren, ein *Juchipila,* d. h. *Xochipillan,* ein altes Heiligtum des Gottes *Xochipilli,* gefunden habe, wo noch heutigen Tags die Indianer Kienfackeln, Kopal und Truthühner opfern.

Die sorgfältig und grossenteils sogar kunstvoll gearbeiteten Stücke des *Palmas*-Typus waren, das unterliegt wohl keinem Zweifel, nicht Gegenstände beliebigen Gebrauchs, sondern zur Aufstellung an irgend einer geweihten Stätte bestimmt. Welcher Art diese gewesen sein mag, ist freilich schwer zu sagen. In dem Grabe auf dem Hügel Nr. 7 der grossen Fundstätte von *Ranchito de las Animas,* in dem die Arbeiter Strebel's neben den Leichenresten ein Steinjoch fanden, lag auch, neben einem Haufen von Obsidianmessern und einem andern Haufen von Jadeit-Perlen und Schmuckstücken, ein weisser Steinkopf mit winkliger Auskehlung auf der Unterseite. Es ist vielleicht nicht unwahrscheinlich, dass diese *Palmas* vor der Leiche eines geehrten Toten als Schützer des Grabes und Geleiter der Seele auf ihrer unterirdischen Reise aufgestellt wurden, wie in zapotekischen Gräbern über der Eingangstüre und im Innenraume jene merkwürdigen Gefässe mit der Figur und dem Gesichte des Gottes mit dem Schlangenrachen einzeln oder in Reihen postirt wurden, — Gefässe, die in ihrer eigenartigen Gestalt in derselben Weise für die zapotekische Region kennzeichnend sind, wie die *Palmas* für das alte Gebiet der Totonaken.

VERSCHWUNDENE ALTMEXIKANISCHE KOSTBARKEITEN DES XVI. JAHRHUNDERTS,

NACH URKUNDLICHEN NACHRICHTEN.

VON FRANZ HEGER,

Wien.

IM siebenten Bande der von Seiner Majestät Oberstkämmereramt in Wien herausgegebenen Kunstzeitschrift „Jahrbuch der kunsthistorischen Sammlungen des Allerhöchsten Kaiserhauses" (Wien, 1888) befinden sich im zweiten Teil als Fortsetzung der gleichnamigen Publicationen der früheren Bände abgedruckt: „Quellen zur Geschichte der kaiserlichen Haussammlungen und der Kunstbestrebungen des Allerdurchlauchtigsten Erzhauses." Ein Kapitel dieser Quellen bilden die „Urkunden und Regesten aus der k. k. Hofbibliothek. Herausgegeben von WENDELIN BOEHEIM."

Hier finden wir nun auf p. XCII folgendes angeführt:

4745. 1524 Jänner 12, Nürnberg.

Kaiser KARL V. sendete an den Erzherzog FERDINAND *einen Mantel* (capa), von Federn in verschiedenen Farben gefertigt und sowohl mit Tigerfell verbrämt als auch gefüttert. Dieser Mantel von ungemein schöner Arbeit wurde kürzlich dem Kaiser von dem Herrn *Motezuma* (de qual hera sennor Motezuma de Agora de Llania [Llanero] la nueva Espana) aus Neuspanien gesendet und war von der Form, wie sie dortselbst in Indien die Priester, bei ihren Opferungen trugen.

Rationar des Kämmerers des Erzherzogs Ferdinand 1524, Fol. 231'/197.

4746. 1524 Jänner 12, Nürnberg.

Kaiser KARL V. sendete dem Erzherzog FERDINAND *drei Kopfschmucke aus Indien,* von verschiedenen Federn gemacht und mit Gold verziert, von wunderbarer Arbeit. Die Kopfbedeckungen (plumases) stammten aus Neuspanien, wo sie von den dortigen Eingebornen getragen werden.

Rationar des Kämmerers des Erzherzogs Ferdinand 1524, Fol. 233'/199.

4747. 1524 Jänner 12, Nürnberg.

Kaiser Karl V. sendete an den Herrn Erzherzog Ferdinand *einen Rundschild* von Fischbein, besetzt mit Edelsteinen, ähnlich den Türkisen und von anderen Farben, geziert mit 60 Figuren en relief, welche theilweise Ungeheuer vorstellten. Dieser Schild stammte aus Neuspanien und war von den dortigen Einwohnern gefertigt.[1]

Rationar des Kämmerers des Erzherzogs Ferdinand 1524, Fol. 233'/199.

4748. 1524 Jänner 12, Nürnberg.

Der Kämmerer empfängt *zwei Hemden* (camisetas) und *eine ysopartige Rose* (y una rosa coma ysoppa rosa). Das eine Hemd ist ein solches, wie es den Priestern in Neuspanien bei ihren Götzenopfern dient, und ist reich mit Blättern und goldenen Federn besetzt und gestickt; das andere ist von hohem Werthe, mit Blättern, Federn und Schnüren ausgestattet, und ein solches, wie es den Göttern geopfert wurde. Der Ysop[2] ist von verschiedenartigen Federn, mit Verzierungen von Gold und schwarzem Bein, und wird von den Priestern in Neuspanien in der Hand getragen. Diese Gegenstände sendete Kaiser Karl V. an Erzherzog Ferdinand.

Rationar des Kämmerers des Erzherzogs Ferdinand 1524, Fol. 232/198.

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[1] Es ist nicht sehr wahrscheinlich, dass dieses Stück der von mir publicirte und abgebildete *Türkisschild* aus der Sammlung von Ambras ist. Erstlich ist dieser aus Holz und nicht aus Fischbein, was jedenfalls ein ganz merkwürdiges Material wäre. Die Türkise würden stimmen, dagegen wieder nicht die Anzahl der Figuren, welche auf dem Türkisschilde von Ambras 23 beträgt, und die ganz deutliche Menschenfiguren darstellen. Jedenfalls schliesst schon die Zahlenangabe 60 eine Identificirung aus, wenn man auch die zum Teil mit grossen Kopfschmucken versehenen Kriegerfiguren auf dem Schilde von Ambras bei den wenig geübten Augen der damaligen Zeit für dergleichen Darstellungen noch als „Ungeheuer" passiren lassen könnte. Die Gleichheit dieser beiden Stücke ist daher im höchsten Grade unwahrscheinlich. Der Türkisschild führt heute die Inventarnummer 43,379 der Wiener ethnographischen Sammlung.

[2] Die Pflanzengattung *Hysopus* gehört zu der Familie der *Labiaten*, ist eine krautartige Pflanze, welche aromatisch riecht und ein ätherisches Öl liefert. Die obige Bezeichnung wurde wahrscheinlich von der Ähnlichkeit mit der Blüte dieser Pflanze gegeben.

4749. 1524 Jänner 12, Nürnberg.

Der Kämmerer empfängt ***ein Hemd*** aus Federn und Tigerfell und ***einen Hut*** aus Federn, welche Kaiser KARL V. an Erzherzog FERDINAND gesendet hatte und welche aus Neuspanien stammen.

Rationar des Kämmerers des Erzherzogs Ferdinand 1524, Fol. 232′/198.

Für den Kundigen ist auf den ersten Blick zu ersehen, dass wir es hier mit ***auserlesenen altmexikanischen Kostbarkeiten*** zu tun haben, die nach der Eroberung von Mexiko durch FERDINAND CORTEZ nach Europa gelangt sind.

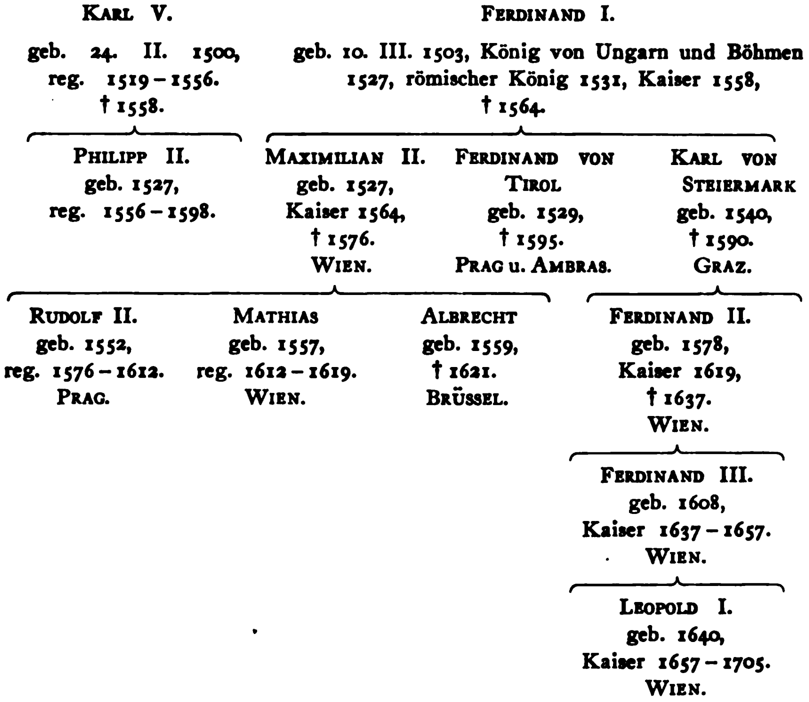
Fassen wir daher noch einmal die angeführten zehn Stücke zusammen, so erhalten wir das folgende abgekürzte Verzeichnis:

Ein MANTEL von Federn und Tigerfell.
Drei KOPFSCHMUCKE aus Federn und Gold.
Ein RUNDSCHILD von Fischbein, mit Edelsteinen besetzt.
Zwei HEMDEN.
Eine ysopartige ROSE.
Ein HEMD aus Federn und Tigerfell.
Ein HUT aus Federn.

Es entsteht nun die für jeden Amerikanisten wichtige Frage: ***Was ist aus diesen Stücken geworden?*** Um der Beantwortung derselben näher zu kommen, ist es hier notwendig, zur Orientirung folgenden kleinen Stammbaum aufzustellen, dessen Zusammenstellung ich der Güte des Bibliothekars der kunsthistorischen Sammlungen des Allerhöchsten Kaiserhauses, Herrn Regierungsrat Dr. HEINRICH ZIMMERMANN verdanke (s. S. 309). Dabei ist zu bemerken, dass KARL V. und FERDINAND I. Brüder waren.

Kaiser KARL V. übersandte daher im Jahre 1524 an seinen Bruder, den nachmaligen Kaiser FERDINAND I., von Nürnberg aus diese zehn altmexikanischen Kostbarkeiten. Nun war ein Sohn FERDINAND I. (und zwar der zweite Sohn) Erzherzog FERDINAND VON TIROL, der bekannte Gründer der Ambraser-Sammlung. Es wäre daher naheliegend, anzunehmen, dass diese Stücke in die berühmte Sammlung dieses Erzherzogs gelangten. Ich habe daher noch einmal die Inventare des

Schlosses **Ambras**, wie sie in den Jahrbüchern der kunsthistorischen Sammlungen des Allerhöchsten Kaiserhauses zum Teil abgedruckt sind, genau durchgegangen.



Karl V.
geb. 24. II. 1500,
reg. 1519–1556.
† 1558.

Ferdinand I.
geb. 10. III. 1503, König von Ungarn und Böhmen 1527, römischer König 1531, Kaiser 1558,
† 1564.

Philipp II.
geb. 1527,
reg. 1556–1598.

Maximilian II.
geb. 1527,
Kaiser 1564,
† 1576.
Wien.

Ferdinand von Tirol
geb. 1529,
† 1595.
Prag u. Ambras.

Karl von Steiermark
geb. 1540,
† 1590.
Graz.

Rudolf II.
geb. 1552,
reg. 1576–1612.
Prag.

Mathias
geb. 1557,
reg. 1612–1619.
Wien.

Albrecht
geb. 1559,
† 1621.
Brüssel.

Ferdinand II.
geb. 1578,
Kaiser 1619,
† 1637.
Wien.

Ferdinand III.
geb. 1608,
Kaiser 1637–1657.
Wien.

Leopold I.
geb. 1640,
Kaiser 1657–1705.
Wien.

Das älteste Inventar von **Ambras** ist vom 4. October 1569 von Innsbruck datirt. Es findet sich unter Nr. 5170 auf p. CXXI des VII. Bandes, freilich nur zum Teil, adgedruckt. Leider ist dieses im Besitze der Wiener k. k. Hofbibliothek befindliche Inventar unvollständig, und es sind darin vornehmlich nur die Rüstungen angeführt. Von unseren mexikanischen Altertümern ist — wenigstens in dem abgekürzten Abdrucke — kein einziges Stück darin verzeichnet.

Das zweite Inventar (Jahrbuch, Bd. VII, unter Nr. 5273, pp. CLI et seq.) stammt nach einer beiläufigen Datirung aus den Jahren 1571–72 und ist betitelt: „Inventar des gesammten im Schlosse zu Innsbruck, im Schlosse zu Ambras und den zu letzterem gehörigen beiden Mühlen und Maierhofe vorhandenen

Fahrnisse Erzherzogs Ferdinand von Tirol und seiner Gemalin." Fols. 1–80. Ist eine Wiederholung des Inventars von 1569 mit Ergänzungen. Auch in diesem finden sich keinerlei mexikanische Altertümer verzeichnet.

Das dritte Inventar (Jahrbuch, Bd. VII, unter Nr. 5440, p. CLXXXIX) ist von Innsbruck 1583 datirt und folgendermassen betitelt: „Designatio armamentarii arcio Ambrasianae prope Oenipontem, in quo variorum illustrium heroum et generalium instrumenta militaria, anna, galeae, cassides, bucculae, pectoralia ferrea, loricae, clypei, parmae, etc., describuntur. — Fragmentum mutilum H."

Auch dieses Inventar ist leider unvollständig, was umsomehr zu bedauern ist, als es das beste aller der Inventare ist, mit ausführlicher fachmännischer Beschreibung der einzelnen Objecte, jedenfalls weit besser, als das weiter unten angeführte vollständige Inventar vom Jahre 1596.

Hier finden sich auf p. CCXVI des VII. Bandes des Jahrbuchs unter Fols. 110′ und 118′ verschiedene Federsachen angeführt, doch sind diese nicht specificirt, und daher jede nähere Bestimmung unmöglich.

Das vierte Inventar (Jahrbuch, Bd. VII, zweiter Teil, unter Nr. 5556, pp. CCXXVI–CCCXIII) ist von Innsbruck 30. Mai 1596 datirt und wurde nach dem Tode des Erzherzogs Ferdinand von Tirol verfasst. In diesem Inventar finden sich nun eine Anzahl mexikanischer Altertümer verzeichnet, die zum grossen Teil in den zwei folgenden Abhandlungen verwertet wurden: „Über mexikanische Reliquien aus der Zeit Montezuma's in der k. k. Ambraser Sammlung," von FERDINAND VON HOCHSTETTER, mit fünf Tafeln und einer Abbildung im Texte (Denkschriften der philosophisch-historischen Classe der kaiserlichen Akademie der Wissenschaften, Vol. XXXV, Wien, 1884, 4°); „Altmexikanische Reliquien aus dem Schlosse Ambras in Tirol," von FRANZ HEGER, mit fünf Tafeln, davon eine in Farbendruck (Annalen des k. k. naturhistorischen Hofmuseums, Band VII, Heft 4, Wien, 1892, 8°).

Es würde hier zu weit führen, alle die in diesem Inventare als indianische oder auch möhrische Arbeit angeführten Stücke aufzuzählen, eine Aufgabe, welche ich mir für eine spätere Publication vorbehalte. Ob der auf Fol. 402 angeführte *Mörische huett,* welchen v. Hochstetter mit dem Federkopfschmucke (er deutete denselben als eine Standarte) identificirt, mit einem der drei von uns im Vorhergehenden aus dem Jahre 1524 angeführten Kopfschmucken übereinstimmt, lässt sich wegen der allzu cursorisch gehaltenen Beschreibung leider nicht feststellen.[1]

Noch ist auf Fol. 250 angeführt: „Ain mohrnhemmet." Auch dieses lässt sich mit keinem der drei vorhin (unter Nr. 4748 und Nr. 4749) angeführten Stücke in Übereinstimmung bringen.

Es ist daher ziemlich wahrscheinlich, dass keines der von uns angeführten zehn Stücke sich damals mit einiger Sicherheit unter den Altertümern der alten Sammlungen von Ambras befunden hat.

Wo aber sind diese Stücke hingekommen?

Der dritte Sohn Kaisers FERDINAND I. war Erzherzog KARL von STEIERMARK, der seinen Wohnsitz in Graz hatte. Ich suchte daher auch das nach seinem Tode im Jahre 1590 aufgestellte Inventar durch, welches vom 1. November des genannten Jahres datirt ist (abgedruckt unter Nr. 4597 im VII. Bande des Jahrbuchs auf p. XV unter dem Titel: „Urkunden, Acten und Regesten aus dem Archive des k. k. Ministeriums des Innern." Herausgegeben von Dr. HEINRICH ZIMMERMANN).

Hier finden sich nun unter der Aufschrift „Andere alte rüstungen" folgende *vier Stücke* verzeichnet: „Ain *mohrangsicht* mit etliche türgesen und zwaien groossen perlln, darauf drei edlgestain und ein grosz perl verlorn. Drei *Yndiänisch rundelln.*"

Das sind anscheinend vier ganz neue Stücke wahrscheinlich altmexikanischen Ursprungs. Ob sich das erstere Stück mit der aus dem früheren Münz- und Antiken-Cabinete stammenden Figur, welche heute unter Nr. 12,585 in der ethnographischen Sammlung des k. k. naturhistorischen Hofmuseums in Wien aufbewahrt ist, in Übereinstimmung bringen lässt, müssen weitere genauere Nachforschungen lehren.[1] Die drei indianischen Rundelln lassen aber keine nähere Deutung zu, und es ist fraglich, ob wir es hier mit wirklich indianischen Stücken oder solchen aus Indien zu tun haben. In den alten Inventaren werden nämlich auch die aus Ostindien stammenden Gegenstände consequent als „indianisch" bezeichnet.

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[1] Heute unter Inv. Nr. 10,402 in der ethnographischen Sammlung des k. k. naturhistorischen Hofmuseums in Wien.

Spätere Inventare aus der k. Burg in GRAZ sind in Bd. XXIV, 6. Heft, des Jahrbuchs abgedruckt unter dem Titel „Inventare, Acten und Regesten aus der Registratur Seiner kaiserlichen und königlichen Apostolischen Majestät Oberstkämmereramtes," herausgegeben von Dr. H. ZIMMERMANN, Wien, 1904. Hier sind an verschiedenen Stellen eine Anzahl indianischer Gegenstände angeführt, welche aber alle ostindischen Ursprungs zu sein scheinen. Unsere vorhin angeführten vier Stücke fehlen jedoch darin.

Es musste daher in der Nachforschung noch weiter gegangen werden. Der erste Sohn Kaiser FERDINAND's I. war der nachmalige Kaiser MAXIMILIAN II., und dessen ältester Sohn RUDOLF II., welcher von 1576 bis 1612 regirte. Da derselbe vor Antritt seiner Regierung ständig in PRAG wohnte, so wäre es nicht unmöglich, dass die angeführten Stücke in die Prager Kunstkammer gekommen wären. Über diese findet sich aber ein vom 6. December 1621 datirtes Inventar vor, welches im Jahrbuch, Bd. XXV, auf p. XIII ffe. unter dem Titel „Das Inventar der Prager Schatz- und Kunstkammer vom 6. December 1621," nach Acten des k. und k. Reichsfinanzarchivs in Wien, herausgegeben von Dr. H. ZIMMERMANN, veröffentlicht ist.[2]

Dieses Inventar beginnt auf p. XX mit der Überschrift:

> „19421. Inventarium aller derjenigen sachen, so nach der victori in ihrer majestät schaz- und kunstcamer zue Praag sind gefunden und auf ihrer mayestät und ihrer fürstlich gnaden von Lichtenstein bevelch seind den 6. decembris anno 1621 inventirt worden, wie volgt."

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[1] Mit diesem letzteren Stücke hat sich in der letzten Zeit der Directorial-Assistent am königlichen Museum für Völkerkunde in Berlin, Dr. W. Lehmann, eingehender beschäftigt, und wir erwarten von ihm noch eine genauere Deutung desselben.

[2] Ich verdanke der Güte des Herrn Verfassers die Einsicht in die Aushängebogen dieser bisher noch nicht erschienenen Arbeit.

Es ist das ein erst neun Jahre nach dem Tode Kaiser RUDOLF'S II. angelegtes Inventar. Eine genaue Durchsicht desselben ergab eine grosse Zahl von als „indianisch" bezeichneten Gegenständen, die aber wahrscheinlich alle ostindischen Ursprungs waren, wie verschiedene Waffen, Tongeschirr, seidene Gewandstücke u. s. w. Dagegen findet sich anscheinend *ein neues Stück* (also das fünfzehnte dieser Reihe), welches unter Nr. 729 folgendermassen beschrieben wird: „Ein grosses nackendes weibesbild, natürlich formirt von materia, mit *einem indianischen mantel von rothen federn* (kam angeblich später nach Schweden)."

Die letztere Bemerkung bezieht sich darauf, dass ein grosser Teil der Prager Kunstkammer im Jahre 1648 von den Schweden ausgeraubt und als Beute nach Schweden gebracht wurde. Wahrscheinlich befand sich aber damals dieses Stück gar nicht mehr in Prag, da es in dem folgenden Inventar nicht mehr angeführt wird. Dieses ist ebenfalls im XXV. Bande des Jahrbuchs auf p. LVIII veröffentlicht unter dem Titel:

19437. 1635 April 16–26 Prag.
AA.

Verzaichnus derjenigen sachen, umb welche mehrers anno 1635 in der kaiserlichen schaz- und kuntscamer zu Prag, saal, gewölbern und andern gemachen befunden, als des Hann Carl Künigs anno 1621 beschrieben fürgebrachte inventariums copei in sich helt, welches daher rühren mag, das dieselben versezet und nit einmal wie da andere mögen genannd sein worden.

Dieses Inventar enthält verschiedene, als „indianisch" bezeichnete Gegestände, wie „hauben, decken, statuen, degen, huette, zwei schild, Geschirr u. s. w." Kein einziges dieser Stücke, welche alle nur ganz cursorisch angeführt sind, lässt die Annahme zu, dass sie wirklich indianischen Ursprungs gewesen sein mögen.

Für den oben angeführten Mantel aus roten Federn habe ich aber eine andere Vermutung. Der dritte Sohn Kaiser MAXIMILIAN'S II. war ALBRECHT, der in BRÜSSEL lebte und 1621 starb. Nun kenne ich in Brüssel einen alten, angeblich mexikanischen Mantel aus roten Federn in dem an die ethnographische Sammlung in der Port du Hal angeschlossenen kleinen Museum. Es ist nicht ausgeschlossen, dass die beiden angeführten Stücke mit einander identisch sind. Bedenklich ist mir dabei nur eines, dass nämlich unser Inventar vom letzten Monate des Jahres 1621 datirt, in welchem Jahre auch ALBRECHT starb. Es wäre aber doch der Mühe wert, darüber weiter nachzuforschen, einerseits in der Richtung nach Schweden hin, andererseits in den Acten von Brüssel.

Um dieser wichtigen Angelegenheit weiter nachzugehen, gedenke ich später die oben angeführten Inventare selbst im Originale durchzusehen, da die Abdrücke manche Kürzungen enthalten, weil man nur die kunsthistorisch interessanteren Stücke anführen wollte. Ich betrachte daher diese Mitteilung nur als eine vorläufige, der dann später eine ausführlichere Abhandlung folgen soll. Vorläufig haben meine Nachforschungen kein positives Resultat inbezug auf den wahrscheinlichen Verbleibsort oder auch nur inbezug auf die Existenz dieser hochinteressanten Objecte ergeben. *Vorläufig müssen sie daher als verschwunden gelten.* Dass sie zu den seltensten Kostbarkeiten gehört haben und heute Unica von geradezu unschätzbarem Werte darstellen würden, geht für jeden Eingeweihten aus dem Verzeichnisse unmittelbar ohne weiteren Commentar hervor. Es soll daher von mir kein Mittel unversucht gelassen werden, um eventuell auf die Fährte zu gelangen, welche, wenn die Stücke *heute überhaupt noch existiren,* zu ihrer Auffindung dienen könnte.

Sehr viel Hoffnung ist hierfür nicht vorhanden; die blosse Möglichkeit einer Auffindung eines oder des anderen dieser Stücke ist jedoch schon vielfach der darauf verwendeten Mühe wert. Eine solche würde geradezu einen Triumph für die Wissenschaft bezeichnen, denn es ist kaum anzunehmen, dass irgendwo anders noch ähnliche Stücke zum Vorschein kommen könnten. Ist doch die ethnographische Sammlung des k. k. naturhistorischen Hofmuseums so ziemlich die einzige, in der sich eine grössere Zahl dieser kostbaren Reliquien — namentlich von den so überaus seltenen Federarbeiten — erhalten hat.

Diese stehen geradezu unerreicht da und erregen die gerechte Bewunderung eines jeden Sachverständigen. Nach der oben gegebenen Beschreibung dürften diese verschwundenen Stücke den vorhandenen zum mindesten gleichwertig gewesen sein, wenn sie diese nicht an Schönheit der Ausführung und Kostbarkeit des Materials noch übertrafen. Wir wollen daher die Hoffnung nicht aufgeben, bis über das Schicksal dieser Kostbarkeiten vollkommene Klarheit herrscht.

THE MEANING OF THE HEAD-PLUME TAWIA'KAMI USED BY THE HUICHOL INDIANS.

BY CARL LUMHOLTZ.

DURING a recent visit to the Huichol Indians in Mexico, I obtained an explanation of the peculiar head-ornament which has already been mentioned and illustrated on a previous occasion.[1] The ornament is called malea'kami tawiakamie'ya ("the shaman's tawia'kami"), or, for short, tawia'kami. It consists of the tail of the eagle or hawk, the quills being fastened together with a string running through them. The tail is then attached to a stick in such a way that it stands off from one side of it (see Plate XXVI). The upper part of the stick is wound with bright-colored crewel, and its point is decorated with a tuft of small feathers, also attached with crewel. It will be noted that the stick is exactly like that which serves as handle to the shaman's plume.[2] Some specimens in my possession have appendages of strings, with four tassel-like knots of ravellings of red flannel, or wool, tied on at regular intervals as ornaments, one generally hanging from the end of the tail, and one or two from the middle of it. Sometimes the tail alone, without the stick, answers the purpose of a tawia'kami. If my memory serves me right, Miss Alice Fletcher told me some years ago that the same or a similar kind of plume is also found among the Sioux.

I need not repeat what I have already pointed out on several occasions in regard to the significance of plumes (mōye'li) among the Huichol. The birds, especially the high-flying eagles and hawks, have much mystic power. They move about in the wind, and see and hear everything. This power is also possessed by the plumes, which, besides, are symbols of health, life, and good luck. By their help the shamans are enabled to

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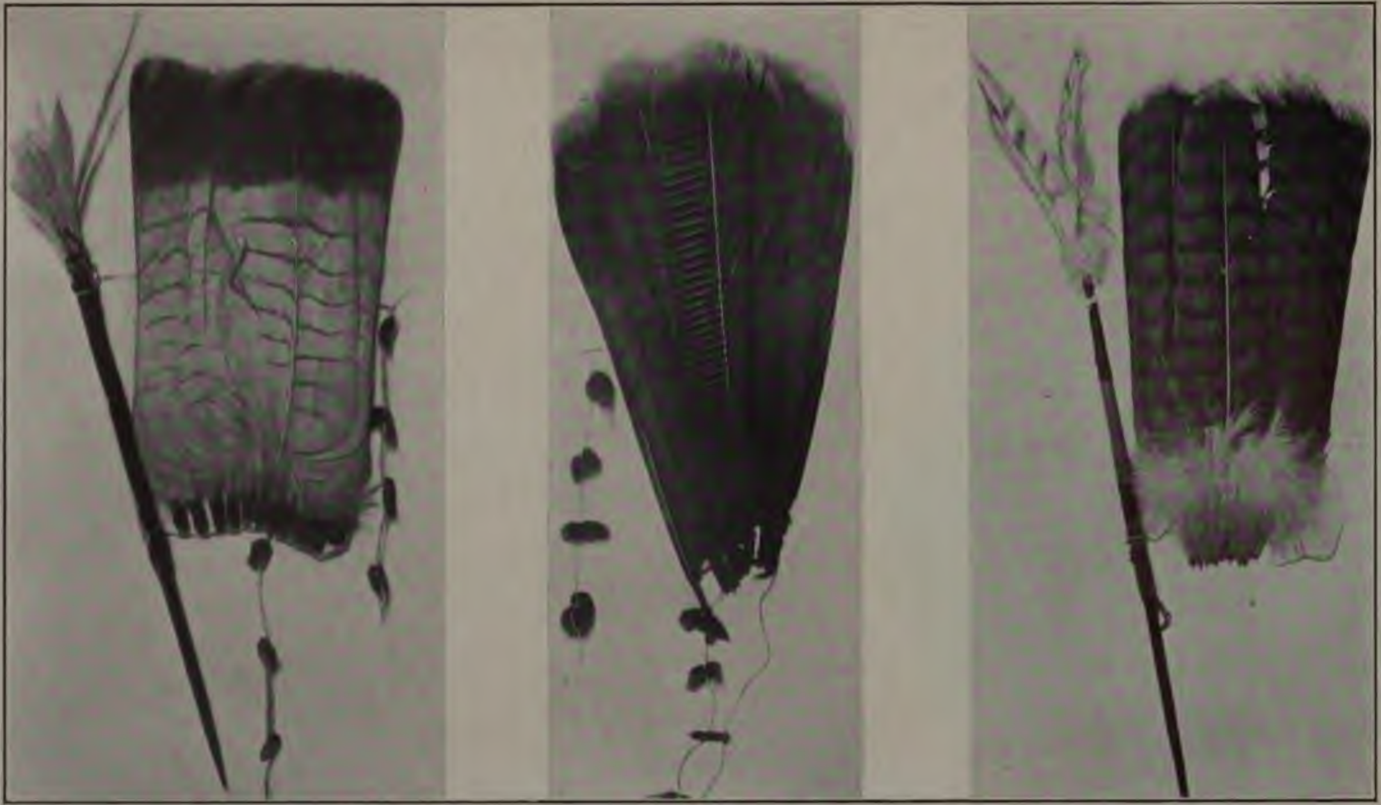
[1] See Symbolism of the Huichol Indians (Memoirs of the American Museum of Natural History, New York, 1900, Vol. III, p. 177).

[2] Ibid., p. 174.



1 2 3

TAWIA'KAMI OF THE HUICHOL, MEXICO.

hear everything that is said to them from the four quarters of the world, and from below the earth.

None but wing-feathers are used for arrow-making, whether they be bow or ceremonial arrows. No tail-feather is ever used for this purpose. The tail of the bird is supposed to be endowed with even higher virtues and merits than the wing. When the eagle or the hawk cuts through the air, the tail is not seen to move. That is, the Indians say, because it is listening and hearing everything, and thereby it is able to bring on what is wanted. It speaks to the four quarters of the world, to the rain, and to the sun, etc. So highly prized are tail and wing feathers, that many Indians keep eagles and hawks in captivity, and deprive them of their plumes as fast as these grow. The first plumes a young bird gets are more valuable than those it gets later on in life. Five times are the birds robbed of their plumes, then they are released.

The head-plume tawia'kami is, as stated above, composed exclusively of tail-feathers: therefore it is often called simply "the tail." Its purpose is to make the shaman hear better. As many as three or four may be worn at a time; and young persons may put them on in order to assist the shaman in his invocations and ceremonies at feasts, as well as on other occasions. They may also be put on for the purpose of finding out a sorcerer who has done an injury to some one. When the air passes through the plumes, they are supposed to convey a message, for the messages of the gods pass through the air, and the singing shaman responds at once when he hears them.

There are several kinds of tawia'kami, which for convenience I have distinguished as No. 1, No. 2, etc. I was able to secure an explanation of all of them through a shaman friend of mine.

No. 1 (Plate XXVI, Fig. 1) consists of the tail-feathers of the white-tailed hawk (*Buteo albicaudatus*), called by the Huichol tu'ra. This tawia'kami is accordingly called in Huichol tu'ra kwarie'ya ("the tail of tu'ra"). Two of these the shaman puts on his head. They are so placed that one comes on each side of the head, the tuft of feathers on the stick to which they are attached pointing forward.

No. 2 consists of the tail-feathers of a hawk called by the Huichol yuya'li. It is accordingly termed yuya'li kwarie'ya ("the tail of yuya'li"). This is placed upright at the back of the neck, in the braid of the hair (the pi'rai).

The above two tawia'kami are used on the same occasion, at the feast of squashes, held at the beginning of October. They are used day and night. In the day-time the shaman sings, and accompanies himself by beating the drum: this part of the feast is called wima'kwari. The singing and dancing during the night are called tāte'-i-ne'ira (tāte', "mother;" ne'ira, "dance") in honor of one of the five "mothers," Tāte' Ve'rika Uima'li, — the young mother eagle who holds the world in her talons, and guards everything from above, especially the crops. The former of these tawia'kami (No. 1) enables the shaman to hear and understand when the deer, the sacrificial object dearest to the Huichol, is to be killed with arrows or with snares; the latter (No. 2) enables him to hear the movements of the sun in the day-time, when the cooked squashes are offered to the gods.[1]

Aside from these tawia'kami, an ordinary shaman's plume (mōye'li) made from the feathers of the yellow hawk (in Spanish *Aguililla amarilla*) is placed upright on the top of the head. Moreover, a shaman's plume made from macaw-feathers is fastened to the chair in which the man sits while singing and beating the drum — this in order to aid the tawia'kami on his head.

No. 3 (Plate XXVI, Fig. 3) is called Kwi'shu motara'uye kwarie'ya ("the tail of the red-tailed hawk, *Buteo borealis;*" in Huichol, kwish or kwir). The word motara'uye signifies "yellow." The stick to which this tawia'kami is attached is wound with yellow and black crewel, while the others in my possession have pink crewel. This tawia'kami is applied to the head in the same position as No 1.

No. 4 is composed of tail-feathers of the royal eagle. At the greatest feast of the Huichol, that of *tamales de maiz*

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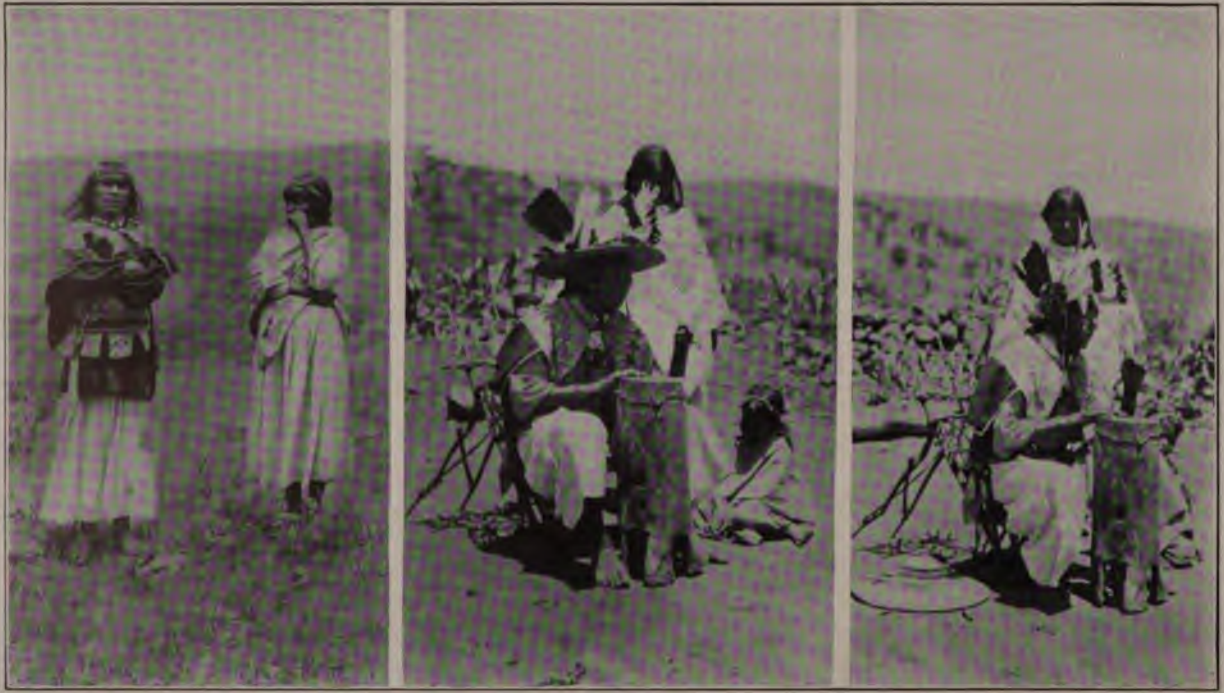
[1] According to the conception of the Huichol, the movements of the sun can be distinctly heard by the shamans, day and night. They sound as if some one were hammering hard. In this way the sun gives notice of what is necessary for the people to do; and, as soon as the people comply with the exactions, the rain, which is constantly in their thoughts, is sure to come.



STYLES OF HEAD-DRESS AMONG THE HUICHOL, MEXICO.

crudo, celebrated generally in May, the shaman, while singing, wears on his head three such tawia'kami made from the tail-feathers of the royal eagle. These three are so arranged that one is placed on each side of the head (the tips of the sticks always forward), and one on the top of the head standing upright.

No. 5 (Plate XXVI, Fig. 2) is a tawia'kami made from the tail of a sea-bird for which the Huichol have no other name than halama'li (from *el mar,* "the sea"); at least, my informant knew no other name for it. The bird in question is the snake-bird or water-turkey (*Anahinga anahinga*). When the Huichol travel to the coast, they kill these birds with arrows. The plumes are highly prized, and are supposed to be endowed with much knowledge, besides being capable of performing magic feats, such as causing grains of corn or coins to fall from heaven to earth. This tawia'kami is used at the beginning of the rainy season to call down rain. One is placed at the right side of the head, while on the left is one of the red-tailed hawk. Besides these, a shaman's plume (mōye'li) is placed upright on the top of the head.

At my request, my shaman friend put on his tawia'kami to pose before the camera. Plate XXVII shows the head-dress used at the ceremonies before the start on the long journey to Paliatsia, the land of the sacred cactus, called in Huichol and Tarahumare hi'kuli, and by the Mexicans *peyote.* The tawia'kami in the central figure are attached to the shaman's sombrero, while in that to the right they are kept in place by a hair-ribbon tied around the head. The arrangement can be distinctly made out. The tawia'kami that turns backward is supposed to listen toward the west for a message, when a deer is going to be killed. Next follows, in upright position, a shaman's plume, which listens to the east for the deer. The two tawia'kami, one on each side of the hat, are supposed to get the message from the north and south. All around the rim are arranged parrot-feathers, which have to protect the shaman's voice from "coming to an end" (i.e., from becoming hoarse) while singing just before he sets out on his long pilgrimage.

HUMAN EFFIGY VASES FROM CHACO CAÑON, NEW MEXICO.

BY GEORGE H. PEPPER.

THE distribution of human effigy vases in the southwestern part of the United States presents an interesting problem. The Pueblo country has furnished but few such objects for comparison; and any new locality in which they are found, especially when situated in the northern boundaries of the culture area, is worthy of consideration.

In the explorations carried on by the Hyde Expedition in the ruined Pueblo Bonito in Chaco Cañon, New Mexico, several portions of human effigy vases were found, and the head of a large effigy vase was taken from a room that contained ceremonial material. This deposit was described in the "American Anthropologist"[1] as Room 38, and by this name it will be known whenever it is mentioned in this article.

The human figure from Room 38 furnished an object worthy of a detailed report, but the finding of a complete figure from the Chaco Cañon strengthened conclusions already formed concerning the specialized form from this restricted area.

The perfect figure is the property of Professor and Mrs. F. W. Putnam. It was in the possession of a trader at Putnam, Chaco Cañon, and was bought by J. W. Hastings, a Harvard student, who gave it to the present owners. The specimen was found in a grave in the Chaco Cañon, but the exact location of the burial is not known.

The jars in question were considered from the standpoint of decoration in an endeavor to identify them by means of modern katcinas, or impersonators of gods. According to the evidence that has been gathered among the Zuñi and Hopi, it would seem that clans from the region of the Chaco had migrated to both of these modern towns.

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[1] N. S., Vol. VII (April–June, 1905), pp. 183–197.

After studying the katcina masks figured by Dr. Fewkes in his work on the katcinas of the modern Hopi,[1] it was found that the face of the He'heā mana was in many respects an exact counterpart of that of the fragment of the effigy vase from Room 38, Bonito.

Mrs. STEVENSON's book on the Zuñi[2] gives a large series of masks and figures, but none of them present markings or physical characteristics in keeping with the figures under consideration, nor any that might have been the prototypes of the effigy-vase faces. Owing to the zigzag markings on the face of the masks, the He'heā Kĭa'nilona and the Hémishikwe goddess were noted for special study, but no particular attention was given to the He'heā until mention of this mask was found in Dr. Fewkes's monograph on the effigy vase from Arizona.[3] The coincidence was striking, and particularly so in view of the fact that the Hopi mana of this form of katcina had been identified as being the one nearest related to the figure from Pueblo Bonito, before mention of the resemblance of the one found by Dr. Fewkes to the Zuñi form had been noted.

Before entering upon a description of the Chaco Cañon forms, a brief résumé of the monograph by Dr. Fewkes, showing the type of figure found by him and the distribution of such figures, will serve as a guide in making comparisons, and will be conducive to a better understanding of the question in general.

The vase from Arizona was found in a cave in the upper part of the Gila Valley, in a section known as Pueblo Viejo. This valley is in Graham County, between Mount Graham and the Bonita Mountains. The vessel is of red clay, made in the form of a seated figure. It is rough on the exterior, and undecorated save for a few lines under the eyes. It is a female figure, with the arms and face modelled in relief. The body is of a globular form, and there is no suggestion of legs. The eyes and nose are large and well defined; but the mouth is small, and rectangular in form. Flat, half-circular pieces form the ears, and both are drilled for the suspension of an ornament. The rim of the opening, which is the full diameter of the head, begins at a point half an inch above the eyes. The arms are flattened against the sides of the body, the fore-arm bending forward, and the closed hands resting upon the abdomen. The type is not unique from the Gila-Salado watershed. Dr. Fewkes considers that the origin of this form is traceable to direct Mexican influence, and that the type extended to the head waters of the Gila. At the time that this specimen was described, none had been found north of the White Mountains in Arizona, according to the writer's knowledge.

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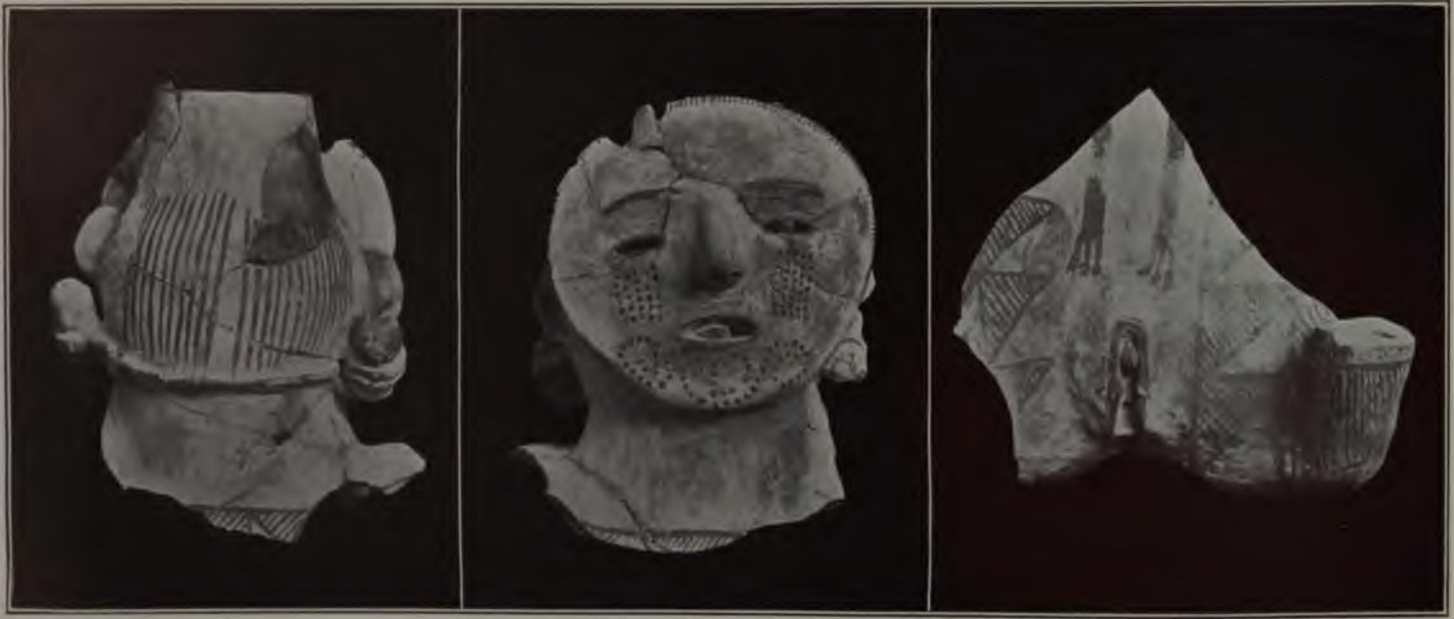
[1] J. WALTER FEWKES, Hopi Katcinas drawn by Native Artists (21st Annual Report of the Bureau of American Ethnology, p. 74).

[2] MATILDA COXE STEVENSON, The Zuñi Indians (23d Annual Report of the Bureau of American Ethnology).

[3] J. WALTER FEWKES, An Ancient Human Effigy Vase from Arizona (American Anthropologist, June, 1898, Vol. XI, pp. 165–170).

THE PUEBLO BONITO TYPE.—The head of an effigy vase from Room 38, Pueblo Bonito, has a face that is flat and circular (Plate XXVIII, Fig. 2). The facial plane, as viewed in profile, presents a slightly rounded appearance, but there has been no endeavor to conform to the natural configuration of the sides of the head. The eyes, nose, and mouth are modelled, and there is a slight upward tilt at the lower part of the face, which forms a chin. The nose expands slightly at the base, and nostrils have been formed by holes punched with some pointed implement. The nostril-openings are outlined with black circles. The mouth and eye openings average nearly one centimetre in depth. They are of an ovoid form, and the left eye retains a well-modelled eyeball. This is a separate piece of clay, which extends from the surface at the back of the eye-opening to the level of the eyelids. The diameter is uniform throughout its length, and the end which forms the pupil is painted black. The tongue is of the same character, and its end is painted with the same color. The eyelids and the lips are in slight relief, and are outlined with a narrow line of black. The eyebrows are formed by ridges which merge into the base of the nose; they are accentuated by broad lines of black paint. The ears are well formed and carefully placed. Viewed from the front, they are partly concealed by the projecting edge of the face.



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HEAD AND TORSO OF EFFIGY VASES FROM PUEBLO BONITO, NEW MEXICO.

The facial decorations, which are suggestive of tattooing, are composed of bands formed by dotted lines beneath the eyes, and a scroll on the chin. Under the right eye the design is formed by means of five lines, four of which have six dots, and one five. The space occupied is about equi-distant from the eye-opening and the upper part of the scroll on the chin. The corresponding series under the left eye has the same number of lines; but, owing to the fact that they have been placed closer together, the band is narrower, and four of the lines have eight dots and one seven. The scroll forming the chin decoration is composed of the same-sized dots as in the other designs. It is a continuous line, forming a triple combination, the central double scroll directly under the mouth joining single scrolls of similar form on either side. The design in its entirety occupies the whole lower portion of the face.

The neck of the jar is ovoid in shape, and has a line of black paint on its edge. This line is open on the posterior edge, which brings up the question of the open and closed "life-lines," as seen in pottery from the Southwest. About three centimetres below the rim, straight lines, representing the hair, begin. They continue over the rounded surface of the occiput. Behind, and at a level with the lower lobes of the ears, coils of hair are represented (Plate XXVIII, Fig. 1). They are not of the circular form now worn by the marriageable girls of the Hopi, but are elongate in form. They are 3.5 cm. long, and over the central portion of each are two strands of clay made to represent cords. These cords are carried from the base-lines across the back of the head. They are raised four millimetres above the surface. The ends of the coils, and the face of the cord projection, are painted black. The lines that form the back hair end at the cross-band. The office of such a band is the retention of the back hair, and in a realistic portrayal the hair-lines should pass under it.

At the base of the neck, which is massive, are the remains of a decoration in the form of interlined triangles similar to those on the torso of the figure from Room 46, Bonito, which is herein described. Similar decorations may be noted on the upper part of the breast, as shown in the illustration in Plate

XXVIII, Fig. 2. The height of this effigy head is 13.4 cm. The face is 9.9 cm. wide, and 9.1 cm. high. The nose projects 1.6 cm. above the face-plane; and the neck is almost circular, there being a difference of but one millimetre between the width and the thickness, the latter measurement being 7.4 cm.

Among the modern Hopi katcinas, the He'heā mana has the hair-whorl of the maidens. In comparing the head from Room 38 with the mask of this mana as figured by a Hopi artist, a very strong resemblance may be noticed. The face of the mana is caused to appear circular in form by the arrangement of the hair, which extends to a point near to, or perhaps actually covering, the upper part of the ears.

In the Bonito figure the hair is represented by a series of short lines, which form a dark band on the upper rim of the face, extending a little below the upper lobes of the ears. The eyes of the figures are similar in shape, as is also the mouth. The eyeball of the Bonito figure is represented by a painted ball in the mana, and its tongue is painted in such a way as to reproduce the form of the other most perfectly. Continuing with the analogy, we find that the mana has well-defined eyebrows; these physical characteristics, in as pronounced a state and of the same form, are found on the face of the effigy-vase head. The nose is of an elongated form in both figures.

The He'heā mana has zigzag lines forming decorations on the cheeks, and ear-rings of turquoise pendant from the ears. These embellishments and decorations change the appearance of the face of the mana. In the effigy figure there are no perforations in the ear-lobes from which an ear-ring might be suspended; and the facial decoration is in the form of parallel dotted lines on either cheek, and a peculiar scroll, formed also of dots, on the chin. The mana has decorations similar to those of her brother, and is no doubt associated in some way with the grinding of the corn in special ceremonies. From the arrangement of the dotted lines on the cheeks of the effigy, it would seem that they were intended to represent a corn symbol. There are such conclusive evidences in Pueblo Bonito that this form of decoration was intended to convey the idea of the ear of corn with the individual kernels, that the interpretation of this particular design as one typifying the corn would be but a natural conclusion.

Regarding the scroll on the chin, nothing can be said. Certain ideas are suggested by its form, but none of them are supported by evidence weighty enough to warrant serious consideration.

TORSO FROM BONITO. — The torso of a human figure was found in Room 48 of Pueblo Bonito, and is suggestive of the phallic designs which appear upon the He'heā and He'heā mana. It represents a portion of a seated figure; and from the angle of the remaining portion of the leg, it would seem that the legs were drawn up against the body, the feet no doubt resting flat upon the ground, with the knees outward. The texture of the clay, the differentiation in color due to the firing, and the general technique of the work, would seem to place it as the lower part of the torso of the effigy vase found in Room 38, or of a figure similar in size and form. The fact that the pieces were found in different rooms would have no special bearing on the question, as fragments of other vessels and implements have been encountered in widely separated rooms in this pueblo. In studying the torso in detail, we find that the lower part of the abdomen, a portion of the left leg, and the major part of the hips, are the only parts represented in the fragment. As shown in the accompanying illustration (Plate XXVIII, Fig. 3), the figure measures 12.8 cm. in height, and 14 cm. in width. The cross-section of the leg shows a thickness of 3 cm. This leg is solid, as is the case with the fragments of arms that were found with it. There are evidences that human figures were made to quite an extent in the Chaco Cañon region, and from the fragments of legs and arms we know that in Pueblo Bonito they were made both in the hollow form and of solid construction.

In modelling this figure, the anatomy received serious attention, the genital organs being represented faithfully and in their proper relations. The vulva is very pronounced. The *mons veneris* rises over a centimetre above the abdominal plane, and the *labia majora* slope from this point to the vaginal orifice. The *labia majora* are parted, and from the upper section there protrudes a ball of clay, which was evidently made to represent the *clitoris*. It was adjusted in the same manner as was the eyeball in the figure from Room 38. It is 6 mm. in length. The vaginal opening and the anus are represented by openings that were made with some blunt implement while the clay was in a plastic state. The *labia majora* have been outlined with a broad black line, and the end of the *clitoris* is painted with the same color. The abdomen is decorated with a double series of triangles, which are filled with lines, forming a hachure effect. Between these are two broad bands which are divided into three parts at their lower ends. Owing to the fact that the upper part of the body is missing, it is impossible to tell what these bands were meant to represent; but from their form it seems quite possible that they were the ends of a scarf of some kind, that hung from the shoulders, or at least from the upper part of the decorated area, the general decorations possibly showing the paintings of a mana, and the scarf a portion of her dress.

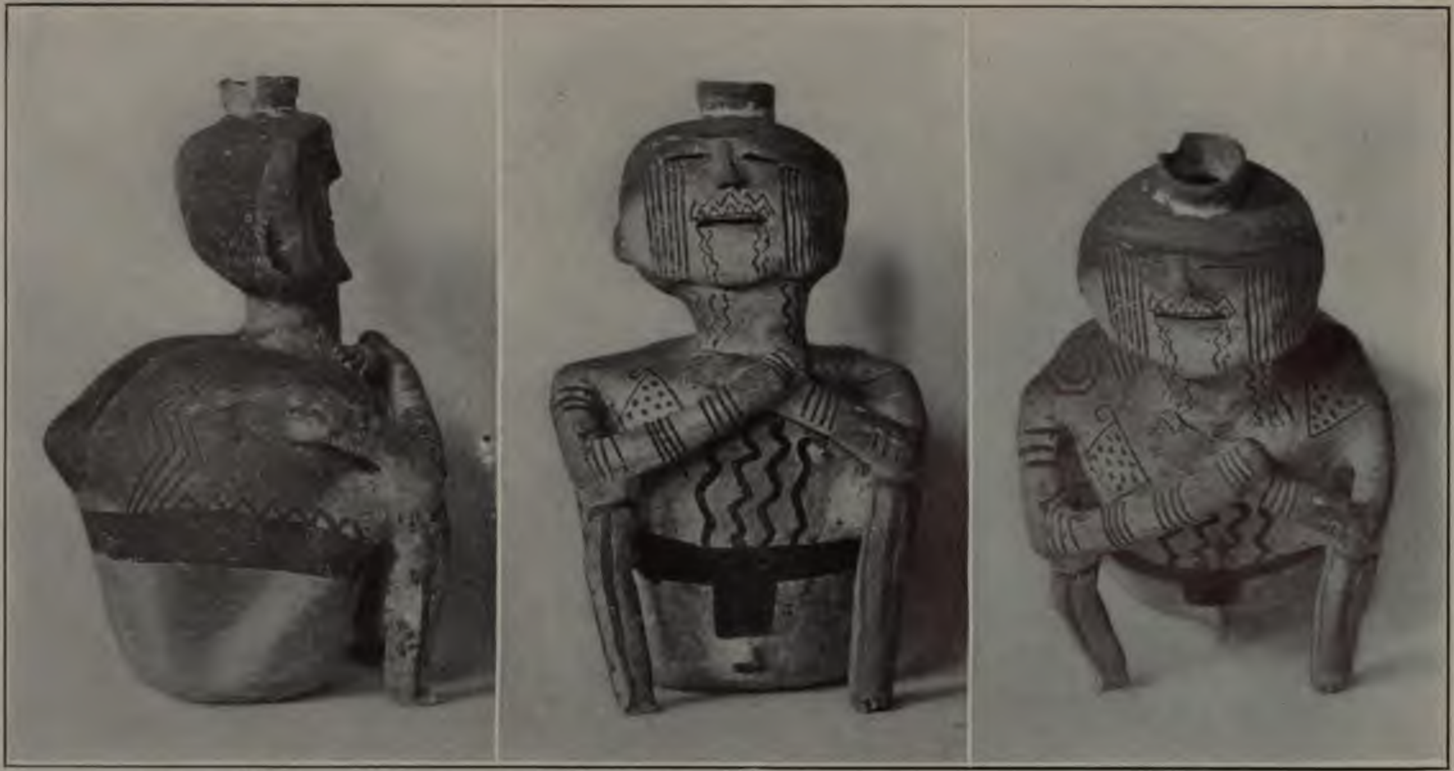
The decorative element shown on this specimen is similar to that which has been preserved on the neck part of the figure from Room 38. The decoration, the outlining of the vulva in the same manner as are the eyes and mouth in the other specimen, and the finding with the torso of an arm which has the same scroll ornamentation as that shown on the chin of the other figure from Bonito, present similarities that are self-apparent. The section of the upper arm is shown in Fig. 13, *d*. This fragment is of solid pottery, 10.7 cm. long, and 2 cm. in diameter on the wider axis. It is somewhat flattened, as is also the companion-piece found in the same room. The second arm-fragment is heavier, and the diameter is greater. Both specimens have a rosette on the shoulder, with a black mark in the centre.

The scroll on the first-mentioned arm is not the same in form, nor is the arrangement of the dots the same, as that on the chin; but in both cases a continuous line is maintained, — on the chin with a single line of dots, on the arm with a double line.

HUMAN EFFIGY JAR FROM CHACO CAÑON. — The effigy jar mentioned as having been found in the Chaco Cañon and now in the possession of Professor Putnam is unusual, in view of its perfect condition as well as from the standpoint of workmanship. It is made of the usual light-colored clay, with a white slip over the entire outer surface. Over this, designs in black have been painted. The figure is that of a seated man. The legs are flexed, and the feet rest flatly upon the ground. From the position of the fragment of the leg in the torso of the figure from Room 38, Bonito, it would seem that the legs of that body had been in the same position as in this figure. The arms of the perfect figure are crossed on the breast, and the elbows rest upon the knees. The neck is strongly defined, and the head is well modelled. The face is slightly ovoid in form; the nose is modelled in relief, is narrow at the top, and broadens considerably at the end; the nostrils are represented by depressions. The eyes and mouth are narrow incisions. One peculiarity presented by these organs is the painting of the inner edges of the depressions with black. This is quite noticeable, compared with the outlining of the eyes and mouth as shown in the other figures. There is but one ear, the other having been broken off: it is a half-circular projection of clay, flat, and with no attempt at modelling. A hole was forced through the central portion, probably for the suspension of an ear-ring, or perhaps a feather. A side view of the figure, as seen in Plate XXIX, Fig. 1, shows the body to be that of a humpback. Deformed figures of this kind are represented in the Hopi katcinas of the present day. Dr. FEWKES, in his description of katcinas, says, in speaking of one of them, "A hump is always found on the back in pictures or dolls of KOKOPELLI." The representation of deformed human beings of this nature in pottery and stone is quite widespread. They are not uncommon in Mexico, being found especially in the Huaxteca and Totonac regions of Vera Cruz and in the Valley of Mexico. Pottery figures with this deformity are also known from the Mississippi Valley and from some of the Southern States. The profile which this picture presents enables us to study the facial characteristics to better advantage than the full-face reproduction. The face is shown to be dish-shaped, the forehead low, the cheeks depressed, the nose and lips sharply defined, and the chin pointed, with an upward tilt. In Plate XXIX, Fig. 2, the formation of the chin may be noted; the pointing has caused a seeming elongation of the cheeks, so that they seem to hang on either side of the chin. The head in its entirety shows careful work in the modelling, the occiput being strongly defined and the contour of the cranium well balanced. The profile view shows the thickness of the projection which forms the ear, also the depression that was made in the cheek in punching the hole through it. Considerable care and attention have been given to the modelling of the hip, and even the calf of the leg is accentuated. The backward tilt of the head overcomes what would otherwise be a somewhat overbalanced figure, and from the angle of the neck it seems quite certain that this was intentional.

The top of the head, showing the neck of the vessel and the formation of the arms, is best seen in Fig. 3 of this plate. Here the vessel has been tilted forward, in order that the designs on the shoulders might be seen. The neck is similar in shape to that of the head from Room 38, Bonito. The perfect one is round, slightly incurved at its base, and rests on the top of the head; whereas the other is more oval, and the back part slopes gently to the back of the head, there being no perceptible difference in the lines of the two parts. The arms themselves have been carefully worked, and are in keeping with the general high class of technique shown in the other parts of the figure; but the hand that rests on the breast is quite crude, and the absence of the hand on the right wrist is surely intentional. Careful examination of the plate will show that the stump of the arm has been rounded and smoothed, and that the end has been painted.

The decorations of this jar, the facial paintings, and the figures on the body, are unusual. The hair is represented by a broad black band above the eyes. In Fig. 1, the continuation of this hair area may be followed. It covers the back part of the head, passing over the temples and behind the ears. It is then contracted to a broad band which passes over the neck, thence down the back, covering the point of the hump, and ends just below it, the end and sides forming right angles. Whether



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HUMAN EFFIGY JAR FROM CHACO CAÑON, NEW MEXICO.

the band in its entirety was intended to show a particular form of hair-dressing, or whether the band from the neck downward was made to represent some ceremonial paraphernalia that was attached to the hair, cannot be determined, as the band shows no break or differentiation in form where it would join the hair at the base of the head. On the right cheek there are six straight lines, extending from a point on a level, and connected with the outer corner of the eye, to the lower point of the cheek-line. These decorations are connected at the top by means of a curved line. On the left cheek there is a similar series of lines. There are seven in this group, and they are connected at the top with a straight line. They pass over a protuberance on the left cheek, its appearance indicating that it was intentional, and it may have been made to represent some deformity. It is 5 mm. high and 1 cm. in diameter. There are no cracks on the surface, and it is too large and regular in form to have been the result of a blister in the clay as the result of firing. Between the nose and the mouth are two zigzag lines resting on a straight line which follows the upper part of the mouth. Two wavy lines depend from either corner of the mouth, and there are four lines of a similar form on either side of the neck.

It has been impossible to associate this figure with any of the modern katcinas. There are several that have the zigzag markings on the face, and some have one or two lines on the cheeks, but none have been found that approximated the decoration shown in this effigy vase. The decoration on the arms consists of bands composed of three and four lines, which span the outer half of the arm circumference. There are five of these bands on the right arm, and three on the left. The right leg has a series of three broad bands extending from a point just below the knee to the feet, — one in front, and one on either side. The left leg has four bands of similar form. In both cases they are connected by a line just below the knee. A broad belt with breech-cloth appendage is shown in the two front views on Plate XXIX (Figs. 2, 3). It broadens on the back of the figure, and completely encircles it. In Fig. 1 the continuation of the belt-like band is seen. The idea of the artist was no doubt a faithful portrayal of the figure as it would appear in life. If so, realism was not attained in the painting of the band where it passes from the side to the front of the figure. Here the band is carried over the leg, instead of ending at the point where the leg joins the body. If, on the other hand, the painting as shown was intentional, it would show that the legs of the figure had been bound against the body with this band, and, instead of being a belt, it would be a binding cord. The latter supposition is hardly tenable, in view of the fact that the breech-cloth form is represented as being a part of the band. On the sides of the jar the band has a series of pointed figures. These are attached to the upper edge. Just back of them, and in the spaces between the shoulders and the hair-band, there are zigzag designs composed of four lines. They start from the belt-line, and extend upward over the shoulders, ending on either side of the neck.

On the right breast there is a figure of a bird. The body is an irregular square, which is filled with dots representing feathers. The head, tail, and one foot are also shown. On the left shoulder there is a diamond-shaped figure, with one end flattened. The space within the lines is filled with dots. It was no doubt meant to represent a butterfly. On the right shoulder is a circular figure which encloses a second circle and a dot. On the chest are four heavy zigzag lines, which start from the breech-cloth band, and end just below the crossed arms. All of these designs are in black. Certain physical features worthy of mention are the crudely modelled feet and hand, the existence of a raised section on the left side, forming a breast, and the genital organs. The penis is in relief, and the scrotum has been painted black. The figure is 19 cm. high and 10.4 cm. wide; from the breast to point of hump, 10.6 cm. The face is 7.1 cm. wide; from chin to forehead, 5.1 cm. The neck is 3.5 cm. wide.

FRAGMENTS OF EFFIGY-JAR FACES FROM PUEBLO BONITO. — A number of effigy-jar faces in a fragmentary condition were found in Pueblo Bonito, two of the most complete of which are shown in Fig. 13, *b* and *c*. They are of the flat, shield-like form. The former specimen, which was found in Room 105, shows the upper part of the face. The hair is represented by a band of black extending across the forehead and down the left side of the face. The eyes have been formed by slight indentations, which are accentuated with black lines. The nose is long and narrow, and raised 7 mm. above the surface. The ornamentation is in the form of three painted lines in black, which begin at the lower sides of the nose, and evidently extended on either side to the hair-line on the side of the face. The face itself is curved, the angle being similar to that of the

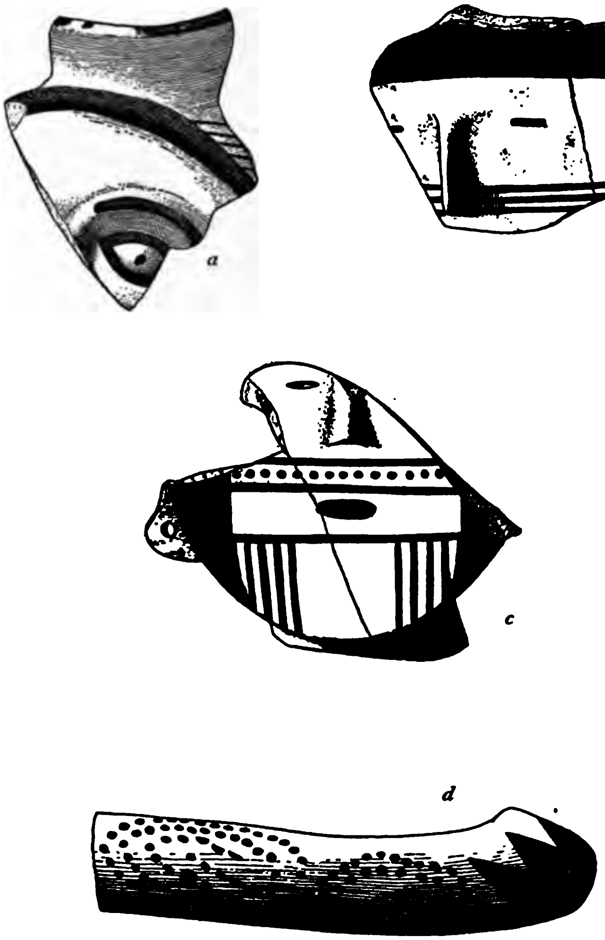


FIG. 13. FRAGMENTS OF EFFIGY JARS FROM THE CHACO CAÑON, NEW MEXICO.

figure from Room 38. The top of the head is similar to the perfect figure described, the line from the forehead to the base of the neck-projection being almost a right angle. This fragment was no doubt the top of a jar similar to the other two figured in this article. It is of the usual white ware, the ornamentation being in black.

The specimen shown in Fig. 13, *c*, represents a portion of another figure of the flat, shield-like form. The clay and paint are the same as in the last specimen described. It was found in Room 170 of Pueblo Bonito, and presents an entirely different style of decoration from that of the other pieces that have been noted. The facial plane is slightly curved, but it is more nearly flat than any of the others. The eye, as shown in the remaining portion of the upper part of the face, is a shallow depression, as is also the mouth. Both are painted, — the eye, within the opening only; the mouth, outlined with a heavy black band. The nose is in relief, and carefully modelled. The ear is almost a duplication of that shown in the illustration of the perfect figure. A hole has been drilled through it for the reception of an ornament. The decoration consists of a heavy band on either side of the face; two lines between the nose and mouth, which enclose a line of dots; and a third line drawn below the mouth, causing this organ to occupy the centre of a rectangle. Passing downward from this line on either side of the chin, are four straight lines, which begin at the third line mentioned, and extend to the edge of the chin. This specimen was in two pieces, which were found in different parts of the room.

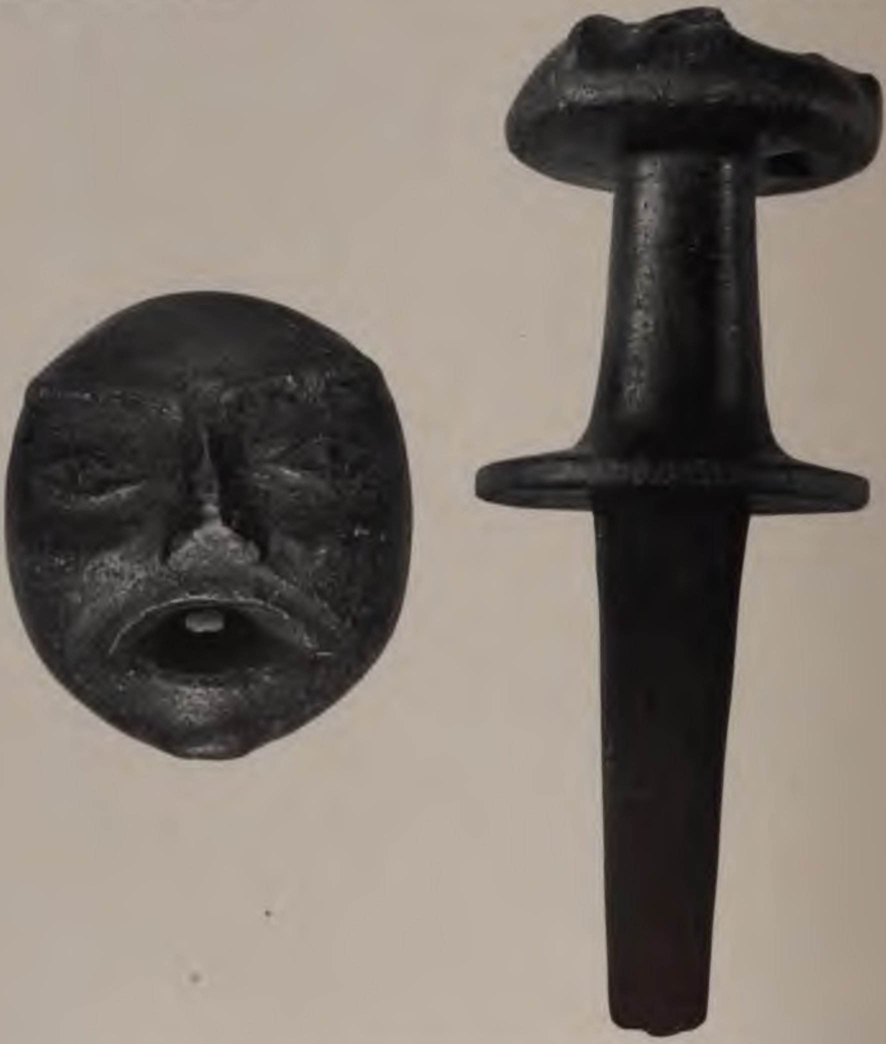
FACE FRAGMENT FROM PUEBLO PEÑASCA BLANCA. — The jar fragment shown in Fig. 13, *a*, was found by Professor Putnam in the ruins of Pueblo Peñasca Blanca, Chaco Cañon. It shows an entirely different treatment from those that have been described. The general effect is the same; and the face, no doubt, was of the shield form; but the eye has been more carefully modelled than those of the other specimens that have come from the Chaco. The brow is represented in relief, and beneath it a well-formed eyeball is shown. It protrudes 4 mm. above the eye-cavity. The lids are formed by two heavy black lines, and the pupil is indicated by a dot. The only other decoration shown is the band over the forehead, representing the hair, and six narrow lines on the left temple and the remains of one on the right temple. These lines emanate from the black band, and are carried backward over the head. They evidently represent a loose arrangement of the hair. The neck is similar to that in the perfect figure; it is more flaring, however, and the rim is painted black. The clay of which this figure was made is somewhat lighter in color than that shown in the other specimens, but the composition is the same.

CONCLUSIONS. — The human effigy jars from the Chaco Cañon have extended the area limit of this form of ceramics several degrees northward in the Pueblo region. Vessels of this nature were in use in Mexico in very early times; and the influence of the Mexican tribes upon the Pueblo people, both in ceramics and in other æsthetic productions, is well known. How great this influence has been on the Pueblo of the North, however, is a question. The arts had reached a high state of development in the Chaco region before the abandonment of the great towns took place; and in Pueblo Bonito, which is the only ruin that has been explored, specialized forms of pottery are found; for instance, cylindrical jars of a certain form, which are, so far as known, restricted to this pueblo. The great variety of forms in most of the wares known to the Southwest indicates either an extensive interchange of specimens or the utilization of ideas as applied to fictile work in the other towns of the region.

The figure described by Dr. Fewkes is closely allied to those found in the Casas Grandes region of Chihuahua, and a similar type has been found in the Socorro region of New Mexico. The general treatment of the face and mouth of the vessels from these parts differs radically from that of the Chaco forms. The modelling of the arms and legs in the round is peculiar to the Chaco, and the specialization of the neck is another marked difference. The head from Room 38, Bonito, is as large as many whole figures from the other regions, and the vase in its entirety must have been at least 30 cm. in height. Stone figures of this size were made, and many of them have been found in the Southwest that were much larger than this figure, but the making of such forms in pottery is known only in the Chaco area.

The Chaco culture is evidently an old one; and the ruins, at least Pueblo Bonito, show no evidences of contact with the Spaniards. It probably lay in ruins at the time of the Conquest. In view of this fact, we may safely affirm that this specialization in pottery forms was developed prior to historic times, and, if copied from the southern forms, it was modified to meet local ceremonial or æsthetic conditions. No records have been found of human forms in pottery from the cave or cliff dwellings of Colorado, Utah, or northern Arizona. This causes the Chaco specimens to hold the most northern point known in the pueblo area, and therefore the farthest removed from the culture from which they may have been derived.

There are many interesting phases of the problem, aside from those of influence and technique. The association of ideas may enable students to trace the origin of certain clans to this region. The fact that the He'heā and the He'heā mana of the Hopi have phallic symbols on their arms, legs, and bodies, and the association of these figures with the meal-grinding ceremonies, present points of analogy that are worthy of study; and, from the evidence obtainable, these Hopi katcinas are very ancient. It is to be hoped that students of cult survivals and those that have been developed in historic times in the pueblo country may be able to use the evidence presented by these specimens in strengthening and extending the knowledge of clan attributes and clan migrations.



CEREMONIAL CHISEL FROM NORTHWEST AMERICA (TOP AND SIDE VIEWS).

CEREMONIAL STONE CHISEL FROM NORTHWESTERN AMERICA

BY GEORGE G. HEYE.

THE ceremonial chisel, the top and side views of which are illustrated in Plate XXX, was one of the specimens in the archæological collection made by the late Dr. Joseph Jones of New Orleans, La.

Although there can be no doubt that the chisel is from the northwest coast of North America, and probably from or in the vicinity of Vancouver Island, Dr. Jones had the specimen catalogued as follows: "Stone chisel from South Sea Islands, probably used in hollowing out canoes." In looking over some old correspondence of Dr. Jones, it appears that he obtained the chisel in 1876 from a sea-captain who had just returned from a cruise among the South Sea Islands. Although it is not clearly stated that the captain claimed to have collected the specimen in the locality mentioned, this evidently accounts for Dr. Jones's erroneous cataloguing.

The chisel is composed of very dark green, almost black, hard basaltic rock, the circular end being carved into a representation of a human face. The carving of the mouth is very deep; and in the centre of it there is a perforation, which, while small in circumference, and extending halfway through the flange forming the face, is cut out in the back, making a rectangular-shaped opening with carefully smoothed and rounded edges, showing that the perforation was probably used in suspending the object.

The tip of the nose has been broken off, and the cutting-edge of the chisel has been somewhat chipped, otherwise the specimen is in good condition.

The extreme length of the chisel is 32.8 cm., the length of the blade is 16.7 cm. The thickness of the hilt at the handle is 1.9 cm., tapering gradually to 0.94 cm. at the edge. The length of the handle is 9.1 cm. The greatest thickness of the head, at the nose, is 5.15 cm., while at the chin it is but 2.8 cm. The greatest width of the face is just above the mouth, and is 10.9 cm., while its maximum length is 12 cm. The diameter of the handle varies from 4.2 cm. to 5.6 cm. The hilt is almost circular, varying but 0.15 cm. in one place, from the otherwise uniform diameter of 12.2 cm. The chisel end is rectangular at the hilt, the two sides that form the cutting-edge being 4.5 cm. wide at the base, and 2.8 cm. at the point, the other two sides having a width of 3.9 cm. at the hilt.

The specimen has a considerable polish, and its weight is exactly five pounds. At present it is in the personal collection of the writer.

NOTES ON THE TAHLTAN INDIANS OF BRITISH COLUMBIA.

BY JAMES TEIT.

THE following few notes on the Tahltan Indians are not the results of any special study of the tribe, but are written out from jottings of what I observed among them, and obtained at intervals from members of the tribe with whom I happened to camp, or who were with me for short periods when hunting moose in their country during the fall of 1903, and big-horn sheep in the fall of 1905. In the fall of 1903 I had a spare day at Telegraph Creek, part of which I spent in visiting the Indians living there and in buying a few specimens. I also obtained a few specimens from members of an Indian hunting-party met with at Level Mountain. All these specimens are now in the American Museum of Natural History, New York.

HABITAT, ETC. — The habitat of the Tahltan tribe is in the northern interior of British Columbia, east of the Cascade Range, between latitude 57° and 59° 30′ north. The village of Tahltan is situated in latitude 58° north, longitude 131° west. Their country is composed for the most part of high semi-open plateaus, intersected by narrow valleys following the streams, and containing some broken ranges of hills. Throughout its entire length on the west it is bordered by the high, rugged range of the Cascades. In aspect and vegetation it is quite different from the "Wet Belt" of the coast, and approximates to the "Dry Belt" of the southern interior; but it has more rainfall, less heat in summer, and much longer, colder winters, than the last-named region. The snowfall is moderate. On the other hand, in the Cascade region to the west, and along Stikine River from Little Cañon to the coast, the rainfall is excessive, probably equalling a hundred and fifty inches per annum, and the winter snows fall very deep. In this part of the country at the present day there are no permanent Indian settlements; and in fact the whole valley of the Stikine River, from its mouth to Glenora, — a distance of some hundred and forty miles, — is devoid of human inhabitants, excepting a very few white trappers and wood-cutters who live there temporarily. Notwithstanding the disagreeable climate, however, the Tlingit formerly had some villages of considerable size on the islands within the mouth of the river, and other smaller settlements as far up as the mouth of the Iskoot; also a band of them who were much mixed with Athapascans lived up at the forks of the Iskoot River, about twenty miles or more above the mouth. The remnants of the Stikine tribe of Tlingit are now living at Wrangel. At the present day they use the lower part of the Stikine as hunting-grounds, where they trap fur-bearing animals, hunt bears, and pick certain kinds of berries. Until within the last year or two a number of them made annual excursions to the country above Little Cañon, where conditions were favorable for fishing salmon and for "sun-drying" them. It seems, the Tlingit have always claimed the Stikine River and valley as far up as Shakesville, near Glenora, whither in former days they resorted every year to trade with the Tahltan. Occasionally trading was also carried on at the fishing-camp above Little Cañon, to which some of the Tahltan descended. In later days the Hudson Bay Company had a post about a day's canoe-journey up the river, on what was then considered British ground, where they traded with the Indians in opposition to the Russians. The Tlingit still do a good deal of travelling on the river, as they are the chief freighters between Wrangel and Telegraph Creek, and as canoemen they can hardly be surpassed. The scenery along the Stikine River is very grand, and there are numerous glaciers. One of them, called the "Great Glacier," is nearly eight miles wide across the face. A party of Russian naval officers engaged in exploring were lost here in a crevasse in the early years of the last century. In this region are several hot-springs, which are used medicinally by the Indians.

VILLAGES. — The Tahltan are supposed to take their name from the Tahltan River,[1] near the mouth of which, at its confluence with the Stikine, is situated their principal village of Tahltan, distant about a hundred and sixty-two miles from Wrangel *via* Stikine River. This place is just below the Grand Cañon of the Stikine, and is a good spot for catching salmon. They have another village at Telegraph Creek, about twelve miles distant downstream; and a very few of them live at Glenora, about ten miles below the latter place. All these villages are on the north bank of the Stikine. The last two are of comparatively recent origin, and sprang up during the Cassiar gold excitement, most of their inhabitants coming from Tahltan. Formerly the tribe had an important permanent village on the Upper Taku River, where they traded with the Tlingit of Juneau, but it has been abandoned many years. The Tahltan hunting-country extends easterly to the confines of the Casca tribe, near Dease Lake, along the main head waters of the Stikine, and south to the head waters of the Iskoot River. Westerly it embraces the eastern flanks of the Cascades, and skirts both sides of the Stikine valley down to near Little Cañon. At the present day the country adjoining the river is occasionally hunted much below the latter place by Tahltan parties on trips to and from the coast. Their chief hunting-grounds, however, are northerly on the plateaus drained by the Tahltan, Tuya, Shesley, Nahlin, and many small streams forming the sources of the Taku River. In this direction they hunt as far north as the tributaries of Teslin Lake. The nearest neighbors of the Tahltan on the west are the Tlingit Indians of the Alaskan coast, whose nearest village at the present day is Wrangel, or Fort Wrangel, on Wrangel Island, about six miles from the mouth of the Stikine River. To the south or southwest, in the interior, around the head waters of the Iskoot, in former days the Tahltan occasionally came in contact with parties of the Niska Indians from Nass River. Their neighbors to the southeast are a small, seemingly nomadic tribe (related in language to themselves), with headquarters until recently at Fort Connolly. These people are generally called "Bear Lake Indians" by the whites, and appear to be a branch of the Tsé'kéhne tribe, called "People of the Black Bear" by Father Morice.[1] On the east their neighbors are a branch of the Na'hane, called "Casca Indians" by the whites, and on the north are some small bands of Athapascan stock, with headquarters around Teslin and Atlin Lakes. These I have not heard assigned to any special tribe.

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[1] It does not seem clear whether the tribe gave its name to the river, or the river to the tribe. Regarding the meaning and origin of the name, I cannot say whether it is "Déné" or "Tlingit."

The Tahltan themselves are a western extension of the Na'hane, and therefore belong to the widely spread Athapascan or Déné stock. Their language is almost the same as that of the Casca, and is closely related to that of other kindred tribes inhabiting almost the whole northern interior of British Columbia and the adjoining Yukon territory. The total number of the tribe at present probably does not exceed two hundred. They are said, however, to have been much more numerous formerly. Physically they seem to be superior to many tribes, a good many of the men appearing to be rather tall, straight, and wiry. Some have a manly and independent bearing, and most of them are of a sociable and cheerful disposition. The men give the impression of being taller than the Carrier, and not so stout. The color of skin appears to be darker than that of the Tlingit. Most of the facial types are similar to those prevailing among the Chilcotin, Carrier, and Tsé'kéhne; a few, especially women, approach nearer to the Tlingit. I saw no obese people among them. The Tahltan are active, industrious along certain lines, and adaptive. They have assimilated the customs of the whites to a marked degree, and have copied their style of dress and their manner of living. A few of them have picked up a little reading and writing, and most of the younger men speak very fair English. They are musically inclined, and fond of singing and dancing, after the manner of the whites. They may frequently be heard singing or humming tunes of the whites, and native airs.

INTERMARRIAGE. — The Tahltan have had, and still have, a great deal of intercourse with the Tlingit, Casca, and Bear

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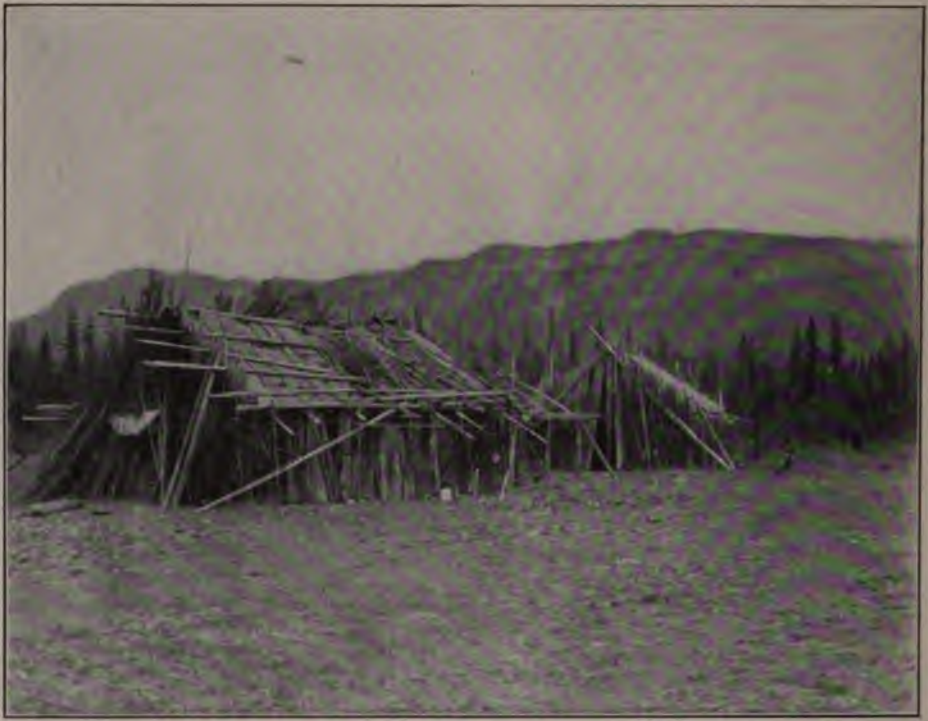
[1] Notes on the Western Dénés, p. 29.



TAHLTAN LODGE FOR DRYING AND SMOKING SALMON, SALMON CREEK, NEAR SHESLEY RIVER, CASSIAR, B.C.

Lake tribes, with whom they intermarry; and at the present time some members of all these tribes are settled among them. A few Tahltan also live among the Tlingit at Wrangel. Some members of the tribe make occasional trips to Wrangel by canoe, or on the river-ice with dogs in the winter, and Tlingit come up to Telegraph Creek with canoes in summer, bringing freight for whites, or taking miners and others up and down the river. Trading is done almost altogether at Telegraph Creek, where there are several large stores. In former days the Tlingit traded oil, blankets, baskets, etc., and goods obtained from the whites, such as shot, ball, powder, tobacco, cloth, etc., receiving in exchange from the Indians of the interior furs of many kinds, dressed skins, snow-shoes, etc.

INDUSTRIES. — The Tahltan dress and smoke skins very well, principally those of the moose and caribou, although sheep and goat skins are also tanned and used as mats. Some of the women are equally expert with those of the southern tribes at silk-embroidery and bead-work. Very little quill-work is now done; but among the Casca, who are more primitive, much quill-embroidery of a high class may still be seen. The men make many snow-shoes in their spare time. Game-bags woven of caribou-thong, and some birch-bark baskets, are still made. It seems that woven mats and woven baskets were not made.

HABITATIONS. — Formerly rude lodges of the oblong, square, and lean-to types, covered with light poles set upright, were almost the only kind of dwellings. These are still used by some families on hunting and trapping trips, particularly in the winter. It is said that a few large houses, having proper walls and gables, and roofs with double pitch, were used as dwellings by groups of families at Taku and other permanent villages. They were constructed of poles, and roofed with bark, and are said to have resembled very closely the large structures still used for curing salmon in (Plate XXXI). At the present day the villages are composed entirely of log-cabins built after the style of the whites; but a large number of the tribe live most of the year in small tents made of drilling, and shaped like those in vogue among the whites. Underground-houses were unknown, and, it seems, lodges of the conical type also. Balsam and other brush were used for beds; and bedding consisted of mats and robes made of skins dressed in the hair. Spoons made of sheep and goat horn are still occasionally used, and formerly bark kettles were in vogue for boiling food.

DRESS. — The clothing of the tribe at the present day is almost the same as among the surrounding whites; but moccasins are still in universal use, especially for hunting and travelling. These are of dressed moose and caribou skin, and are nearly altogether of two old-style types easily distinguished by the toe-cuts. The first type is similar to a style of toe prevalent among the Carrier, Chilcotin, and Shuswap, and also used by some of the Thompson Indians; but among these tribes the overlying flap concealing the cut is wanting. The other characteristic type has a cut of toe which I have not seen among moccasins of other tribes, excepting the Casca. Some women occasionally wear moccasins which are trimmed with fur, and are devoid of the uppers or legging part. A round-toed moccasin is also made and used by the Tahltan; but they claim that this style is of comparatively recent introduction among them, being copied from moccasins worn by eastern half-breeds and whites. All the moccasins I have seen have trailers, but these are seldom fancifully cut, as among the Thompson Indians, being generally large and square, but in some cases oblong or rounded. Colored silk and cotton handkerchiefs are the common head-dress of the women; and the men wear handkerchief, soft felt hats, fur caps of their own make, and woollen toques of the French Canadian style. A few wear skin coats, leggings, and blankets over their other clothes in cold weather, and Canadian or Hudson Bay sashes are also used. It is said that woven rabbit-skin robes are not made nowadays, and I did not see any. A few marmot-skin robes are made. Very few ornaments are worn, those in vogue being chiefly finger-rings procured from the whites. Face-painting is not now indulged in, and tattooing seems to be rare.

FOOD-SUPPLY. — Salmon are dried in considerable numbers, and also trout in some places. Roots and berries are not found in the same quantity and variety as farther south, and consequently form a much less important part of the food-supply than among southern tribes. It even seems that not all the edible varieties are used, for I noticed several plants employed by the Thompson people for food and medicinal purposes of which the Tahltan have no knowledge. In fact, their use of plants for medicine seems to be very limited. Root-diggers were sometimes made of caribou-antler. The bows and arrows in use were of a longer, plainer type than among the Thompson, and probably resembled those mentioned by Father Morice as having been in vogue among the Tsé'kéhne.[1] Arrow-heads were generally made of obsidian obtained from south of Stikine River, and chipped and flaked in the ordinary way. At the present day, muskets, rifles, and shot-guns are altogether used; and many of the men carry shot-pouches, belts, and powder-horns embroidered with beads, which differ in type from those of the southern tribes. Gun-covers are also much in vogue, made of dressed caribou and moose skin richly embroidered with colored silk, beads, and occasionally quills. Beaded garters are also sometimes worn. The Tahltan were, and are still, pre-eminently hunters and trappers, and gain by far the greater part of their livelihood by the snaring and trapping of fur-bearing animals, and the hunting of large game, principally caribou and moose, which are plentiful in many parts of the plateaus and higher valleys. Bears of all kinds, big-horn sheep, mountain-goats, wolves, lynxes, foxes, wolverenes, martens, etc., are also abundant. Small game, chiefly Arctic hares and ptarmigans, are quite plentiful. Blue and ruffed grouse, ground-squirrels, and marmots are also plentiful in some localities. Pumas, elks, and antelopes are not to be found, coyotes are scarce, and deer until a couple of years ago had never been seen in the Tahltan country. Twenty-five years ago moose were also very scarce, but of late have been increasing in numbers and occupying new localities. It is noticeable that of late years, in the interior of British Columbia, deer have been constantly extending their range farther north; and moose, on the other hand, have been gradually spreading south. Both those animals are now occupying districts where formerly they were very scarce or altogether unknown.

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[1] Notes on the Western Dénés, pp. 56–59.

FISHING. — Fish are caught by means of hooks, spears, nets, and traps, but I did not happen to see many of their fishing operations. Once at a creek in 1903 I saw two or three men engaged in catching salmon by means of light wooden spears or poles sharpened to a point, a few inches back from which a notch was cut, and the stick slivered slightly towards the point (Fig. 14). This is said to be an impromptu method much in vogue, and fairly effective. Salmon ascend into the Tahltan country both by the Stikine and the Taku Rivers. At some of the principal salmon-fishing places large houses are erected for drying and smoking the fish. Last fall I saw two of these in use at Salmon Creek on the Upper Shesley River. They were made of poles, and roofed with bark. Each must have been fully forty feet in length. The accompanying illustration (Plate XXXI) will give an idea of their appearance and construction. At this place salmon were being caught by means of large hooks attached to the end of light and moderately long poles, and also by means of traps, which were of slightly different construction from those generally used by Indians farther south (Plate XXXII and Figs. 15, 16). The trap shown in Fig. 16 consists of two boxes made of light rods fastened with withes. The fish enters by pressing on the finely balanced twigs attached to the entrance of the upstream box,

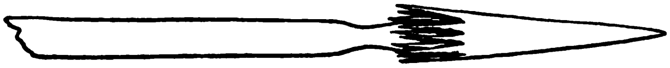


FIG. 14. WOODEN SALMON-SPEAR USED BY TAHLTAN ON CREEKS.

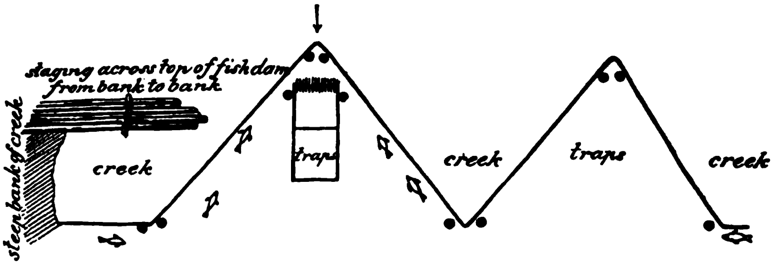
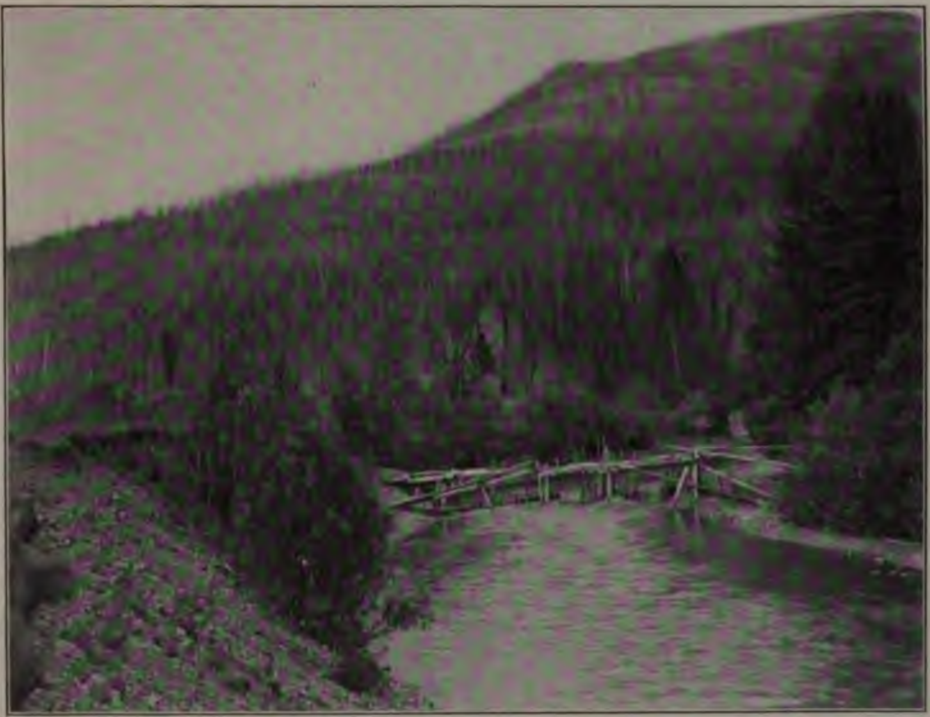


FIG. 15. OUTLINE OF FISH-DAM. The small circles represent posts.



TAHLTAN FISH-DAM AND SALMON-TRAPS ON SALMON CREEK, NEAR UPPER SHESLEY RIVER, CASSIAR, B.C.

and cannot return, as the twigs resume their natural position as soon as the fish has passed. The fish pass on to the second box, where they congregate and pack one another.

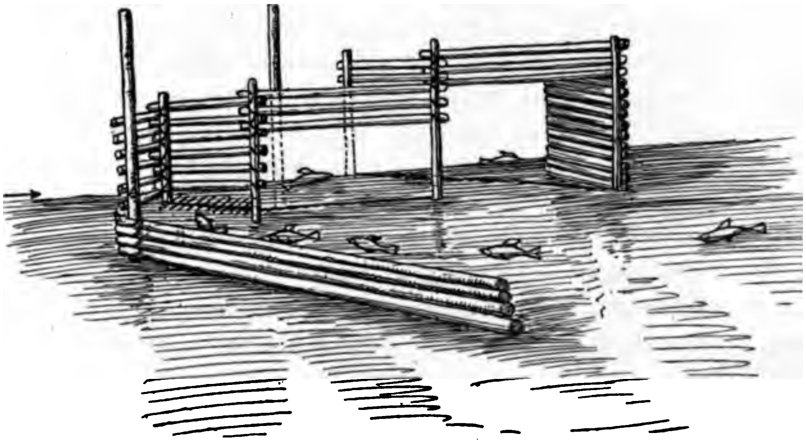


FIG. 16. OUTLINE OF FISH-TRAP.

TRANSPORTATION AND TRAVEL. — Canoes were used on the Stikine, Taku, and some other streams and lakes. They were mostly dug-outs acquired from the Tlingit, but on the upper streams were made by themselves from cottonwood-logs. In some places bark canoes were used, which at the present day seem to be dispensed with altogether, and log-rafts are used instead. From description, some of the bark canoes formerly in use appear to have been similar in type to those still used on

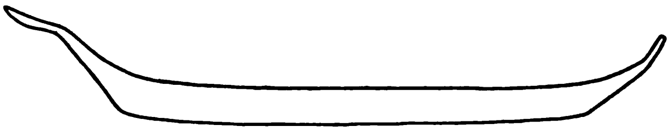


FIG. 17. BARK CANOE, CANADIAN YUKON TYPE.

the Canadian Yukon, having high, narrow, projecting prows and sterns, flat bottoms, and the bark put on in longitudinal strips (Fig. 17). The canoes in almost universal use among the Casca tribe are made of moose-hide stretched on a framework of wooden ribs, but in former days bark was more used than skin. These hide canoes have to be kept beyond the reach of dogs, which, when hungry, sometimes destroy them. Snow-shoes are indispensable to the Tahltan, and are of three types, generally of excellent workmanship. All have wooden cross-bars, and the *babiche* is of dressed caribou-hide cut very fine. The most common type is that called the "shovel-nose;" and another common kind is the "sharp-nose" or so-called Casca snow-shoe. The third variety I did not see, but from description I infer it is similar to a wide type used by some of the Carrier and Chilcotin.[1] Dogs are as indispensable to the Tahltan as snow-shoes, and large numbers of them are kept. At the present day they are mongrels, some of them still showing traces of the old Indian breed. When the snow is good, they are hitched to wooden sleds of a kind similar to those used by the Carrier, and are thus employed for transporting supplies, camp outfit, game, etc. At other times of the year they are used for packing, loads in proportion to the size and strength of each dog being lashed to its back. Canvas panniers, much after the style of saddle-bags, are used for placing the load in. The Tahltan do a good deal of "tumping," and I have met travelling-parties of as many as fourteen men, women, and children, and as many dogs, all carrying loads of various sizes. The "tump-line" used is made of hide, and is of the ordinary type. Although a number of Tahltan can ride and pack horses, having worked in white men's pack-trains, etc., they are not a "horse" people, and it was said that the total number of horses owned by the tribe in the fall of 1903 was two only. For the conditions of their country, dogs are considered much more serviceable, being easily kept, and able to go over muskeg and on ground where horses could not travel. Besides, the long winters, comparative scarcity of feed, and the winter trapping-excursions of the Indians, all help to prevent the keeping of horses. The Tahltan are not inclined to agricultural pursuits; and, even in those places where certain crops could be successfully raised, practically nothing is grown by them.

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[1] See A. G. MORICE, Notes on the Western Dénés, p. 152, Fig. 141; or the aihza, p. 153.

WAR. — It seems that war was not a prominent feature of Tahltan life in the olden time. However, I heard of one war with the Tlingit of Juneau which lasted several years; and at the conclusion of peace a count was made of people killed on both sides, resulting in the acknowledged loss of several more men by the Tlingit than by the Tahltan. Another war is spoken of, in which the mixed Tlingit of the Iskoot River were killed or driven from their homes; and other bands on the Lower Stikine suffered severely by frequent raids of the Niska, who seem to have been very bold and persevering in their attacks.

GAMES. — The principal game at the present time is card-playing, acquired from the whites. Lehal, which appears to be played in the same way as among the southern tribes, is also in vogue. Another game, now little practised by the Tahltan, but still common among the Casca, is that also formerly in vogue with the Carrier, Chilcotin, Shuswap, Thompson, etc. It is played with about thirty-five small sticks in the same way as among the Thompson Indians, and described by me in "The Thompson Indians of British Columbia."[1] Among the latter tribe, however, the winning stick was marked with a single ring; while among the Tahltan the winning stick has four rings, — three together, and one apart. The bags used for holding the sticks are of a quite different type from those used by the Thompson and other southern tribes.

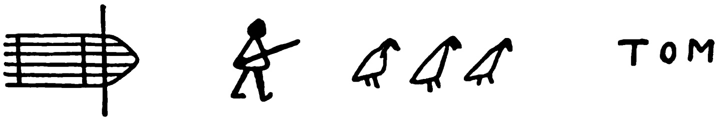

FIG. 18. PICTURE-WRITING OF THE TAHLTAN.

PICTURE-WRITING. — The drawing of pictures on bark, or, more generally, on the blazed wood of trees, is common among the Tahltan, to judge from the number seen along trails and at camp-sites. At the end of the picture, or underneath it, is often written the person's name, as most of the young Tahltan can write their English names in text letters. I got the exact meaning of one of these pictures (Fig. 18) from the Indian who made it, which is, "Tom, using a raft, shot three geese." It was drawn with charcoal on the trunk of a tree at a camping-site near the lake just south of Lost Creek. A goose wrapped in balsam-twigs was suspended from the end of a pole just above the notice. This was intended as a present to a party following, that was expected to camp there. I have not noticed rock-paintings in any part of the country.

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[1] Publications of the Jesup North Pacific Expedition, Vol. 1, pp. 272, 273.

BURIAL-CUSTOMS, ETC. — The Tahltan at the present day bury in the ground, and erect little board houses over the graves. They seem to collect the bodies in regular graveyards, as I did not notice lone graves here and there on the plateaus, as are often to be seen in the Chilcotin country. Until of late years the totem or crest of the deceased was carved or painted on all grave-boxes. Although the Tahltan have had no white priests or instructors resident among them, there do not appear to be any shamans or shamanistic observances.

SOCIAL ORGANIZATION. — The tribe has recognized chiefs; but these do not seem to have any very great influence, nor do they take any very prominent part in affairs. Chieftainship is, or at least was, hereditary. Strange to say, the man who rightfully should be chief of the Tahltan cares nothing for the position, and has for the last twenty years lived hundreds of miles away, among the Thompson River Indians. The reverse of this is the case with a Shuswap from Canoe Creek, who has been living for the last twenty-five years with the Casca, among whom he is married, and has a family. The Tahltan were organized in clans corresponding to family groups of the Tlingit. As far as I have been able to learn, three clans existed among the Tahltan: viz., (1) Wolf, (2) Brown or Grisly Bear, and (3) Raven. Among the Tlingit, each clan is subdivided into a number of groups, each having one or more totems or crests of its own. Each of these groups lived originally in a different place, and possessed its own special hunting and fishing grounds, apart from and independent of the others. Several of these groups were represented among the Tahltan, all of them having been introduced through intermarriage with Tlingit of the Lower Stikine, Wrangel, and Juneau. Most of the present-day Tahltan are representatives of the Wolf and

Raven clans, the Grisly Bear people having, it is said, died out. I heard of the following groups as still existing among the tribe:

1. Nanea'i, belonging to the Wolf clan. *Crests:* Brown Bear, Dogfish, and Killer-Whale. The name is said to mean in Tlingit "up-stream," "above," or "those above." It is claimed that the original home of this group was at or near the mouth of the Stikine River.
2. Katcadē's, belonging to the Raven clan. *Crest:* Toad. This group takes its name from a place called Kātc, and all those members of it now living at Wrangel are partly of Tahltan descent.
3. Tokxlawe'des, said to mean in Tlingit "ancient" or "original people." This group is now extinct in Wrangel, but some members survive among the Tahltan.

Descent among the Tahltan is through the maternal line. The Casca are said to be organized paternally, and have no clans and clan groups, so far as I could learn. The Tahltan do not belong to any particular region, and have been visited only at rare intervals by missionaries of the Catholic Church.

A PAWNEE RITUAL OF INSTRUCTION.

BY GEORGE A. DORSEY.

THE ritual or poem here presented is supposed to have been recited by grown people to children during the winter. Often it would be recited several times during a night, in order that the children might learn it.

The lines are conceived of as having been spoken by the first mother, the Evening Star. The belief is also implied that the Rabbit would interpose and offer a way contrary to that suggested by the Evening Star. Thus the Rabbit is supposed to have suggested that if people should stumble while walking on the earth, they would die; but the Moon sided with the Evening Star, and said that there would be many ways for people to stumble, and many ways to produce death. The poem has been transcribed and translated by Mr. JAMES R. MURIE from a phonograph-cylinder, and was chanted by Woman-newly-made-Chief, a Skidi.

1. Listen, the girl in distress walks to and fro on top of the mountains.
2. Listen, the girl's ears tremble, as she runs to and fro, listening.
3. From the girl is truly descended a fine tribe of people.
4. There are left behind grass lodges.
5. They rub their backs upon the poles of the lodges.
6. Many buffalo shall be consecrated, and shall be carried one by one at the foot of the hill.
7. Yonder are high hills and low, covered with waving grass.
8. Now listen, pay attention, they give out their words in their own tongue.
9. Yonder on the slopes of the willow-covered hills is a cave.
10. Turtle shall speak and say, "We will destroy you."
11. Now I make holy this Comanche who is brought into the lodge.
12. Meat shall be taken from the back of the buffalo.
13. The rays of the sun shall enter the lodge.
14. Burnt-offerings of flesh and human beings shall be made.
15. The earth then shall become a plain.

16. When this shall happen, people shall see the streams as bows.
17. You shall live under the heavens, and move about over the land as a tribe.
18. Then the people shall come together, and all shall live as one people.
19. The earth shall be fruitful.
20. The owl; the owl.
21. You shall go to the ravines.
22. The carcass of an animal that has been eaten to the bone.
23. The spotted rabbit had his way, like a warrior, and he counts coup upon the enemy.
24. The mouths shall look round.
25. The noise of sticks and voices shall move to and fro.
26. May the fathers wave the sticks!

NOTES.

1. The girl is supposed to be the first human being on earth, which is in accordance with the well-known Skidi belief. She is conceived of as standing on the top of a mountain, looking in every direction to see if she may discover any other human being. The name for the girl in Pawnee is Choraki, meaning "rains standing," for she was brought from the west, the home of the Evening Star, by the rains.

2. The girl's ears tremble or vibrate; that is, she moves her ears in each direction to discover, if possible, voices of people. She hears songs of birds and running streams of water. Leaves rattle on the trees, and even grass rustles under her feet, as she walks about.

3. Thus meaning that the girl is the mother of mankind.

4. That is, the first habitation built by Skidi was a grass lodge. This is in accordance with Skidi mythology, where many references are found which point to the priority of the grass lodge over the earth lodge.

5. Reference is made to the time when, after the people had multiplied and there were many grass lodges, the buffalo followed them, scratching their backs on the poles of the abandoned lodges.

6. Mythology of the Pawnee contains innumerable references to the consecration of some part of the buffalo to one or the other or all of the gods to which reference is made in this verse.

7. Meaning that in after years they will ascend the high hills to look for buffalo.

9. This verse contains the words which are referred to in the eighth line; reference being made to the voices representing the animal power within the caves, within the hills, and within the mountains.

10. Reference is here made, of course, to that part of Pawnee cosmogony which describes the flood caused by the Turtle in order that the four monsters might be destroyed. The turtles especially aided by crawling under their feet, causing them to fall toward the four world's quarters. The special hidden meaning of the verse is that later people shall destroy one another, and especially that human sacrifice shall be offered to the Morning Star.

11. This line is considered authority for the custom of sacrificing human beings. As the sacrifice is taken into the lodge, the priest is supposed to receive it and pronounce it holy by pronouncing the name of the Morning Star. It is interesting in this connection to note the fact that the Comanche are explicitly mentioned, for the Skidi word for Comanche means "People-above-others."

12. Reference is made to the preparation of thin slices of meat from the back of the buffalo, to be jerked. This meat is for the feast in connection with the sacrifice of the human being to the Morning Star.

13. Only part of the idea is presented in the verse. The full expression would refer to the sun's rays as entering the lodge and touching the earth near the consecrated person, and next touching the consecrated person; for, until the sun's rays have touched the consecrated one, the sacrifice may not take place.

14. The offerings are to be made to the gods in heaven, of course. The Skidi word for "offering," kiritsu, is also used for the sweat-lodge, in which they consider that they offered themselves, along with their prayers, to Tirawa.

15. That is, the hills and the mountains shall disappear, in order that people may look far out over the country. The idea is implied that after the sun's rays have touched the earth, the hills and mountains shall appear again, for the sun has caused the mists to disappear, and the hills and valleys appear sharp again.

16. That is, bows and arrows shall be given to the people, with which they may kill game, offerings, and also human sacrifices.

19. Reference is made not alone to the earth; people also are to multiply.

20. The owl shall be known as the wise and learned one, and is to be the pattern of the priest; like the owls, they are to chant their ritual in the night.

21. Arriving there, you will find the remains of animals; for animals, too, like men, will die.

23. Reference is made to the Rabbit spoken of in the introduction, and is a star which stands in the sky in the northeast, just east of the Milky Way.

24. Meaning that they shall have plenty to eat, and their mouths shall be round and open with shouts and songs.

25. The sticks spoken of in this line represent really the arrows which the spectators shoot into the maiden who is to be sacrificed to the Morning Star while she is standing upon the scaffold; while the voices refer to the war-cries they utter while they are directing their arrows towards her.

26. That is, the ceremony shall be given by the fathers of the calumet pipe-sticks which are to be waved over the children, who are thereby to be blessed by Tirawa. The pipe-sticks, two in number to represent the male and female element, are supposed to have come originally from the Evening Star, the wife of the Morning Star, the mother of the girl referred to in the first line of the poem, and who may be regarded as the spirit of fertility. As she presented originally the pipe-sticks to humanity, she makes possible increase among men.

CHEROKEE STAR-LORE.[1]

BY STANSBURY HAGAR.

According to the Cherokee, every living object on earth is the descendant of an ancestor in the sky, who is represented by some star or group of stars. From that ancestor it has received all its characteristics; indeed, the ancestor is definitely said to be the only real object of its kind. Its earthly descendants are regarded as mere shadows or reflections, or, perhaps more properly, emanations. It naturally follows that the celestial prototype has complete power over its children, to whom it is united by an irresistible bond of sympathy based on similarity. He who desires to accomplish anything with reference to an animal must first evercome the magic power, peculiar to each species, which it possesses as a birth-right received from its celestial ancestor. This can only be accomplished by propitiating the invisible ancestor; that is, by establishing a sympathy with it, which will enable him who does so to acquire a more than human knowledge of its secret powers. The bear-hunter, for example, must thus propitiate the Celestial Bear before setting out to pursue the animal; for all bears are invisible to the hunter when they lie on their backs with the soles of their feet up, unless the hunter has learned the magic power of their species. There is little doubt but that this interesting doctrine of the celestial prototype was general among the American Indians; and that, as in Peru,[2] it is based upon the idea of a universal all-pervading spirit of life, the Mother of all things. In accord with it, every living animal must be represented by some star, and star-worship must have been the prevailing aspect of American Indian religion.[1] But either this doctrine was never followed to its logical conclusion among the Cherokee, or many of the stars representing objects of lesser importance were forgotten, for the modern Cherokee assign names to but few of the stars and constellations. Their reasons for assigning these names can generally be explained as based on similarity of form or color, or on relationship between the position of the heavenly object and some seasonal characteristic of its supposed terrestrial relative. Where such reasons are easily seen, there is evidently no necessity to explain by transmission the existence of similar names attached to the same stars among other tribes; on the other hand, when such similarities are associated with arbitrary symbols difficult or impossible to explain, they afford by their nature as strong evidence as can be obtained of the transmittal of such concepts from one tribe to another.

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[1] Notes collected amongst the North Carolina Cherokee for the late R. G. Haliburton, Esq., in 1898. The author's thanks are due to Mr. James Mooney of the U. S. National Museum for corrections of Cherokee words.

[2] Stansbury Hagar, Peruvian Astronomy (in course of publication), Chapter on Cult, and Symbol.

The Cherokee generally regarded the sun as a woman, the moon as her brother, reversing their usual sex among the Indians; but the orbs were thought of rather as the residence of the celestial brother and sister than as their actual persons, a view also held by the Indians generally. However, the beautiful girl of the sun was said to have been visited at night by a man whom she failed to see. Against his second coming, she blackened her hands with seven burnt corn-cobs, and, when he arrived, rubbed the black upon his face, whence the spots on the moon. MOONEY gives this legend in more extensive form.[2]

> The Sun was a young woman, and lived in the east, while her brother the Moon lived in the west. The girl had a lover who used to come every month in the dark of the moon to court her. He would come at night, and leave before daylight; and although she talked with him, she could not see his face in the dark, and he would not tell her his name, until she was wondering all the time who it could be. At last she hit

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[1] MOONEY, in his valuable work Myths of the Cherokee, p. 231, states that the animals originally went from the earth-world to the sky. Those on earth now, with a few exceptions, are not descendants, but weak imitations. This is the only statement upon which the writer's information differs from Mr. Mooney's, except in minor details. Possibly the original animals descended to earth, and later returned to the sky. Possibly the present animals are not descendants, but emanations, like the rabbit.

[2] Myths of the Cherokee (Washington, 1902), pp. 256, 257.

upon a plan to find out: so the next time he came, as they were sitting together in the dark of the *asi* (sweat-lodge), she slyly dipped her hand into the cinders and ashes of the fireplace, and rubbed it over his face, saying, "Your face is cold, you must have suffered from the wind," and pretending to be very sorry for him; but he did not know that she had ashes on her hand. After a while he left her and went away again.

The next night, when the Moon came up in the sky, his face was covered with spots, and then his sister knew he was the one who had been coming to see her. He was so much ashamed to have her know it, that he kept as far away as he could at the other end of the sky all the night. Ever since he tries to keep a long way behind the Sun; and, when he does sometimes have to come near her in the west, he makes himself as thin as a ribbon, so that he can hardly be seen.

This legend is repeated by the Eskimo, and in Panama, Brazil, and northern India. Elements of it are found also among the Cheyenne and on the Thompson River.[1]

"Some old people say that the moon is a ball which was thrown up against the sky in a game a long time ago. They say that the two towns were playing against each other; but one of them had the best runners, and had almost won the game, when the leader of the other side picked up the ball with his hand, — a thing that is not allowed in the game, — and tried to throw it to the goal, but it struck against the solid sky vault and was fastened there, to remind players never to cheat. When the moon looks small and pale, it is because some one has handled the ball unfairly, and for this reason they formerly played only at the time of full moon."[2]

This indicates the truth of a suggestion made by several writers, that the Indian ball-game was originally an actual imitation of celestial motion, the ball representing the sun or moon.

"When the sun or moon is eclipsed, it is because a great frog up in the sky is trying to swallow it. Everybody knows this, even the Creek and the other tribes; and in the olden times, eight or a hundred years ago, before the great medicine-men were all dead, whenever they saw the sun grow dark, the people would come together and fire great guns and beat the drum, and in a little while this would frighten off the great frog, and the sun would be all right again.

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[1] Mooney, Myths of the Cherokee, p. 441; Harley, Moon Lore (London, 1885); Rink, Tales and Traditions of the Eskimo (London, 1875); Nery, Land of the Amazons (New York, 1901); Teit, Thompson River Traditions, p. 62; Kroeber, in Journal of American Folk-Lore, July, 1900.

[2] Mooney, Ibid., p. 257.

"The common people call both Sun and Moon Nuñda, one being 'Nuñda that dwells in the day,' and the other 'Nuñda that dwells in the night;' but the priests call the Sun Su'tălidihĭ' ('Six-Killer'), and the Moon Ge''yăgu'ga, though nobody knows now what this word means, or why they use these names. Sometimes the people ask the Moon not to let it rain or snow."

The morning and evening stars seem not to have been distinguished. It was probably the planet Venus which was called the "Great Star," another natural and general name for it among the Indians. At the beginning of the world it appeared first of all the stars, as it still does when evening star. It was closely associated with the Pleiades, and with that mighty mythological being, the Great Horned Rabbit. In the "Popol Vuh" also it appears before the sun, and in Peru seems to have been regarded as older than that luminary.

As among many other tribes, the most important constellations were Ursa Major and the Pleiades. Of the seven stars known to us as the Dipper, the four in the basin form a bear (yânû), which is pursued by three (or, as some say, seven) hunters (aníkanátĭ), represented by the three stars of the handle. The middle hunter carries a pot (tū'sdĭ) in which they are going to cook the bear when killed. Bruin issues from his den (ustágălûñĭ, Corona Borealis?) in spring. The hunters pursue him across the sky in summer, and kill him in August. The honey-dew which falls then comes from his fat, which they are trying out over a fire.

A variant relates that a party of hunters, having killed a large bear, camped, made a fire, and cooked some of the meat. After eating this, they started home, carrying what remained of the carcass. As they journeyed, they noticed that the landscape was gradually rising in front of them; but they kept on, and in this manner reached the land of the sky. Next evening people on earth first saw the seven stars of the Bear. If you watch them closely, you will see that they are hunters, carrying a load of bear-meat on their backs. They must carry it forever now, because they have lost their way, and will eternally circle around and around, but will never find it again.

The writer has discussed elsewhere the points of interest in this legend of the celestial bear, whose seasonal position eternally corresponds with the features of the legend.[1] It was general from the Point Barrow Eskimo on the north, to the Pueblo on the south;[2] and, singular as it is that these stars should have been associated with the same animal in the Old World and in the New before the time of the first-known intercommunication, there seems to be little doubt of the fact that this interpretation was common to both continents.

The Pleiades were pre-eminently dancers, and, as in almost all parts of the world, stars having power over rain and the harvests. To the Cherokee they were known as Unădatsúgĭ ("the Group") and Anitsútsă ("the Boys"). Seven boys came together to practise shooting with bows and arrows. They used a bundle of corn-cobs as a target, sometimes penetrating as many as five cobs at a time. They would continue to shoot until all their arrows were discharged; then they would gather them up, move the target farther on, and renew the match. They kept this up till their mothers grew weary of it, and told them, that, if they must keep shooting at things not fit to eat, they must go elsewhere to do it. So the boys went away around the side of a hill, and disappeared. They remained away so long that their parents at length became anxious, and searched for them. Soon they perceived the boys dancing the feather-dance in a circle, accompanied by the sound of an ancient drum (ahúlĭ). But the parents noticed, that, as they danced, they were gradually rising higher and higher from the ground. In alarm, they picked up poles and tried to knock the boys down, but they were already too high to be reached; and they continued to dance, gradually ascending higher and higher all the while, until at last they were but specks in the sky. As they were rising, their parents called to them in vain, urging them to return. They only replied, "We have found a place now where we can shoot as much as we please." Thus they became the Seven Stars of the Pleiades; and the drum, the nebula near one of those stars. There were seven stars for seven days; then one fell to earth, leaving a fiery trail. All the Indians gathered together to know what this might mean. They found that the star had become a bearded man, who sat down and warned them of the coming of the flood. He remained on earth seven years, and then disappeared, leaving his footprint on a rock. The stars are still called the Seven Stars, although there have since been but six. The Seven Stars possess greater magic power than any other stars, and, if not propitiated by the feather-dance, they might cause cold weather and injure the crops. Each dancer in this feather-dance held in his hand seven eagles' plumes of different colors. The Cherokee used to estimate their years by the number of times the Pleiades were in a certain position at a certain time of night. They also determined the seasons by observing their position at sunrise and sunset, for so the Great Rabbit taught them to do. In ancient times there was a dance each month in honor of the morning star and the Pleiades. Time for planting was marked by their heliacal rising in May; when they culminate, the leaves begin to fall.

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[1] Journal of American Folk-Lore, Vol. XIII, pp. 92 et seq.

[2] CUSHING, statement to author.

Mooney gives the legend with some slight changes, and adds that one of the boys was knocked down by a pole, but struck the ground with such force that he sank into it, and the earth closed over him. His mother came every morning to cry over the spot, until the earth was damp with her tears. At last a little green shoot sprouted up, and grew day by day until it became the tall tree that we now call the pine; and the pine is of the same nature as the stars, and holds in itself the same bright light.[1] The Iroquois repeat the main features of the legend.[2] The Blackfeet believe the Pleiades to be boys who ascended to the sky because their fathers gave to their sisters, instead of to them, the yellow skins of the buffalo-calves that they had slain.[3] Mooney states that the Kiowa call the Pleiades the star girls. It is probable that they are also represented by the dancing girls in the beautiful Algonquian legend of Algon and the Stellar Maidens. They, the daughters of a star chief, descend from the sky in a basket to dance in circles on the prairie, tossing a brilliant ball from one to another. They are secretly observed by Algon, a young warrior, who wears a white falcon-feather on his head. He eventually captures the most beautiful of them, whereupon the others re-ascend to the sky.[1] The Susis of Morocco connect this constellation with dancing girls. According to the Greeks, these girls were the first to introduce the circular dance.[2] This dance symbolizes the rhythmical movement of the heavens, which seems indeed to have been the original basis of dancing. The Pleiades were a peculiarly suitable group to represent this symbolism, partly because their alignment naturally suggests that of a group of dancers, but principally because their unique appearance, and their position in the sky with respect to seed-time and harvest, made them in many parts of the world the season-makers of what was perhaps the earliest calendar.[3] The existence in America of this Pleiades calendar, which seems to have preceded both the lunar and solar calendars, is clearly indicated in Peru and Mexico, as well as in this Cherokee legend. The name "group" or "heap," applied to the Pleiades in many parts of the world, is readily explained by their form. The seventh lost Pleiad, recognized in both Orient and Occident, probably refers to the seventh star, which, though of the sixth magnitude, while its companions are of the third and fourth, may be seen by strong sight or in a clear atmosphere. It has been suggested that this seventh star may formerly have been brighter; at any rate, the difficulty of seeing it, except under the most favorable conditions, may have given rise to a legend of its temporary disappearance, which the later conventionalized version translated into a permanent effacement. Seven is the most sacred number among the Cherokee, perhaps because it represents the seven regions of the cosmos, — the four cardinal regions, up, down, and centre. In the Iroquois myth the brightness of the seventh star is dimmed because of his desire to return to earth. The bundle of corncobs at which the boys shoot suggests the granary, which is the symbol of this constellation in Peru and China.

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[1] MOONEY, Myths of the Cherokee, pp. 258, 259.

[2] ERMINNIE SMITH, U. S. Bureau of Ethnology, 2d Report, p. 80.

[3] American Antiquarian, May, 1893, p. 149.

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[1] This legend is given in its most poetic form in DOMENECH's Deserts of North America. See also SCHOOLCRAFT, Hiawatha Legends, pp. 116 et seq.

[2] HALIBURTON, How a Pygmy Race was found, p. 25; PAYNE KNIGHT, Symb. Lang. of Anc. Arts & Myth, pp. 148, 149.

[3] See the researches of R. G. HALIBURTON in New Materials for the History of Mankind, BLAKE's Astronomical Myths, etc.

The fall of the seventh Pleiad, connected with the Deluge, possibly based upon the fall of a Taurid meteor, is echoed in a Mexican legend which describes the fall of the six stars called tzontemocque. They seem to refer to the culmination of the Pleiades in November, at the time of the Deluge.[1] The Deluge legend in Peru and other parts of America, as well as in the Euphratean region, is based simply upon the annually returning rainy season.[2]

In what seems to be a fragment of the Cherokee origin myth, before there were any stars in the sky the Great Rabbit, who was horned, told the people to watch the eastern sky by night, and they would see the Great Star rise. Then he told them that seven days later, when the Great Star was overhead, the seven stars of the Pleiades would appear. Until then the Great Star was the only star in the sky. So the people watched this star to know when the Seven Stars would rise; and, while they were waiting for them, the Great Rabbit directed them to make a great feast, with dances and all kinds of food, in honor of their coming. As they first appeared in spring, when all the people were happy, they were hailed with joy, and were greatly loved and reverenced. The Great Rabbit then told the people that the Great Star had been sent as a messenger to announce the coming of the sun; the Seven Stars, to warn them of the approach of the Deluge.

The Great Rabbit was the largest and brightest of all the rabbits. He was drowned in the Flood; but the present race of rabbits sprang up after the Flood subsided, from the pieces of his body that were washed ashore.

This evident association of the Great Horned Rabbit with the Pleiades and with the Flood is interesting, first, because of the relation between the latter two elsewhere; second, because, while in South America the stag alone represents Taurus, in Central America and Mexico that constellation is symbolized by both stag and rabbit, but the rabbit has acquired the horns of its partner.[1] North of Mexico the author has failed to find any direct relation between the rabbit and Taurus, except in this Cherokee legend; but alike in Mexico and through the greater part of the United States, the rabbit is one of the chief personages in tribal mythology. In Peru also the Pleiades indicate the coming of the flood or rainy season in November. They float over the waters, and re-appear triumphant after the subsidence of the rains. In one version of their Deluge myth a shepherd of llamas is verbally warned of the coming rains by his flock.[2] One more feature of the Cherokee Pleiades legend deserves attention; that is, the palm-tree which in Mooney's variant grew up on the spot where the seventh Pleiad fell to earth. In Peru, Scorpio, the constellation opposite to the Pleiades, is depicted as a tree. It is probably identical with the cocoanut-palm of the Indians on the Amazon, and with the cedar-tree of the Osage.[3]

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[1] Codex Tell. Rem.

[2] Peruvian Astronomy, chapter on Mythology.

The Cherokee recognize two dog-stars, Sirius and Antares. They guard opposite points of the sky, where the Milky Way touches the horizon. Both are never seen at the same time, but one or the other is always visible. The tradition is that souls, after the death of the body, cross a raging torrent on a narrow pole, from which those of the evil-doers and cowardly fall off, and are swept to oblivion in the waters below.[4] Those who succeed in crossing go eastward, and then westward to the Land of Twilight. They follow a trail until they reach a pass beyond which the trail forks. There they encounter a dog (gilĭ'), who must be fed, otherwise he will not permit the soul to pass. Having left him behind, the soul continues to follow the trail until it encounters another dog, who must also be propitiated with food. The unfortunate soul who is insufficiently provided with food for both dogs, having passed one, will be stopped by the other. The first will not permit him to return, and he will be held a prisoner forever between the two animals.

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[1] Peruvian Astronomy, Taurus chapter.

[2] Ibid., chapter on Mythology.

[3] Ibid., Scorpio chapter.

[4] Brinton denied the existence among the American Indians of any contrasted concept of good and evil, and regarded as not indigenous any legends in which such concepts appeared; but to the author's mind, while the American Indians certainly did not emphasize this concept as our theology does, especially on the ethical plane, they nevertheless distinguish good and evil, as do every people above the grade of savage.

The trail which the souls follow is probably the Milky Way, generally known among the North American Indians as the "Path of Souls," over which they pass from earth to the land of souls, though the Cherokee of to-day do not seem to use that name for it. The pass would then refer to the points where the Milky Way touches the horizon. At both of these points it actually forks; and, according to a legend widely known among the Indians of the Southwest, one class of souls follows one fork, another class another. Beside these forks, as they alternately appear on the southern horizon, are located the two dog-stars, Sirius and Antares. The Skidi Pawnee furnish a similar tradition, to the effect that souls, after death, are received by a star dwelling at the northern end of the Milky Way. He leads then northward across the earth to the point where the Milky Way touches the horizon, then places them upon it, — warriors upon the dim and difficult arm, women and those who die of old age upon the brighter and easier path. The souls then journey southward. At the southern end of the celestial pathway they are received by the Spirit Star, and there they make their home.[1]

It is not difficult to recognize Antares in the Spirit Star at the southern end of the Milky Way. This star has been the peculiar star of the dead in the Euphratean region, Peru, Guatemala, and many other parts of the world.[2]

In Sirius as the Cherokee dog-star we encounter again the same identity of name in Oriental and Occidental tradition as met us in Ursa Major. Undoubtedly, on the face of it, the simplest explanation of this identity would seem to be modern

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[1] Dorsey, Traditions of the Skidi Pawnee (Boston, 1904), p. 57.

[2] Peruvian Astronomy, chapter on Scorpio.

European influence, especially as in this case we have no evidence of the use of the name among the Cherokee until centuries after contact with Europeans. Moreover, Mooney doubts the indigenous origin of any portion of this Cherokee legend of the journey of souls. On the other hand, the dog-star is intimately and consistently associated with concepts not only of widespread distribution among the American Indians, but unquestionably indigenous in at least some localities. Again, the mythological elements with which the name is associated suggest no general modern European parallels. They are the property of the Indians. Similarities between Oriental and Occidental astronomical symbols in Peru, and to a lesser degree in other parts of America, are of frequent occurrence; but the Oriental analogies usually belong to a period long preceding that of the modern European discovery and exploration of America.

The Maya and Huichol had a scorpion constellation, probably indigenous, which, with the former probably, and with the latter certainly, included Antares. The Huichol also represented two dogs among their constellations, one of which occupies the position of Sirius.[1]

As to the log-bridge, the Peruvian tradition connected with the Aquarius asterism was, that souls, on their journey to the spirit-world, cross a broad river, the Milky Way, on a narrow hair bridge; others say they are carried over the river by some black dogs. In Mexico the dead were borne across the river of souls on the backs of two little red dogs. In the mouth of each of these animals a stone was placed as a tribute. The Hindus and Peruvians had a similar tradition.[2]

Another Cherokee legend relating to the Milky Way declares that there were once two hunters in the sky, — one who lived in the north and hunted big game, another who lived in the south and hunted small game. The former became jealous of the latter, and one day, perceiving the southern hunter's wife grinding corn into meal, he seized her and carried her away from the corn-beating place far across the sky to his home in the north. Her dog ate the meal that was left, then followed her across the sky; and the food fell from his mouth as he ran, forming a trail of meal, the Milky Way. But when the northern hunter arrived home with his southern captive, such was the spell of her presence that the weather became warmer and warmer, until all the ice in that region began to melt. At length the northern hunter could no longer endure the heat, so he was compelled to release his prisoner. She returned home with her dog, and the weather in the north resumed its normal aspect.

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[1] LUMHOLTZ, Symbolism of the Huichol Indians; Peruvian Astronomy, chapters on Taurus and Scorpio.

[2] Peruvian Astronomy, chapter on Aquarius.

This is, of course, a season legend, eternally repeating itself, like that of the Celestial Bear, the southern wife being the American Proserpine, — the summer which is carried each year into the region of the north, and returns each year to the south, whence she came. The hunters were no doubt represented by stars in or near the northern and southern ends of the Milky Way; the southern woman and her dog, by others. Seasonal legends are found among other North American tribes, but not, so far as the writer knows, in form suggesting this legend. According to Mooney, who gives a variant of it, the Milky Way is called Gĭ-lĭ′-utsûñ stănûñyĭ ("Where the dog ran").[1] There is a similar Greek legend.

Another Cherokee constellation is Gûnesûñĭ, the wooden box in which the daughter of the sun was placed after her death from the bite of a venomous serpent. It is not identified. The lengthy legend, probably stellar throughout, is given by Mooney.[2] It reveals the existence in the Cherokee heavens of a mighty horned serpent, the Uktena, which recalls a similar celestial type in Mexico and Peru, — a type common throughout American Indian mythology. Somewhere in the Great Smoky Mountains there is said to be a cave in which two immense rattlesnakes lie sleeping. They are believed to have some good influence over the Cherokee.

The Hyades become the Arm, — a human arm bent from the elbow. A certain man, having broken his arm, grieved much to feel that he was now useless in hunting and war. He left his home, and wandered eastward to meet the rising sun. Some time after this, people on earth saw the Hyades appear for the first time, and they recognized in them the arm of this man who had wandered into the sky-land because he was crippled and useless on earth. The Osage recognize an Arm constellation, but it has not been identified.

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[1] Myths of the Cherokee, pp. 259, 322.

[2] Ibid., pp. 239, 252 et seq., 297.

The three stars of Orion's belt are the Three Magicians or Little Men,—invisible wonder-working spirits possessed of superhuman power. This name for these stars is too suggestive of the three Magi of Catholic tradition, also connected with these stars, to escape the suspicion of missionary influence, especially as no native legend accompanies the name. A similar Micmac tradition of the Three Kings is evidently of European origin.

Comets and meteors are called atsíl tlûntû'tsĭ ("fire panther"), probably because they move so rapidly, and because their trail resembles the frosty breath of the panther. The meteoric shower of 1833 is said to have presaged to the tribe the dire misfortune which followed in the tragic "removal of the Cherokee" in 1838. The rainbow they regard as the tongue of the Celestial Serpent drinking water.

A VAST NEGLECTED FIELD FOR ARCHÆOLOGICAL RESEARCH.

BY HARLAN I. SMITH.

THE territory roughly included in the area known as "The Great Plains," "The Plateau Region," and "The Barren Lands," — which forms such a vast portion of the North American Continent, — in my opinion, offers an extensive field for co-operative archæological research, since its prehistoric ethnology is practically unknown.

Its historic ethnology has recently received attention at the hands of energetic, trained anthropologists. Its prehistoric ethnology, or archæology, however, has been neglected, possibly because modern ethnological problems in that area have held the attention of visiting anthropologists, or perhaps for the reason that, on all that vast area, comparatively little literature or other material was available. Few archæological sites are known, and literature on the whole subject is scant, even clews to sites being of rare occurrence in papers on other subjects. Archæological specimens from the region in question, both in museums and in private hands, are not numerous; and those that do exist show a narrow range of forms, and, with few exceptions, have little or no individuality. All these facts have no doubt contributed to the causes of this deplorable neglect. A further reason was probably the supposition that the region was uninhabited until comparatively recent times; that it was an area where only a few finds could be expected as a reward for the persevering toil of the investigator; and that such finds would be of only a few types, of crude technique, and of a low order of art.

Some archæological work, however, has been done in this area, notably in Wyoming, but by anthropologists chiefly interested in problems relating to the ethnology of the present peoples.

The scarcity of archæological specimens from this vast area, and the dearth of literature on the whole subject, may be due to the fact that until recently no one fitted to collect or to write has visited the region, it having been occupied by white people only lately, and not even visited by them until comparatively recent times. It must also be remembered that the lumbermen, cattlemen, miners, and railroad men, who have made up a large percentage of the white people who have been in the territory, belong to a shifting population, not given to the examination, much less to the preservation, of archæological objects; while until very recently the number of farmers and settlers has been small. These stable people, having homes, possess means of caring for such specimens as appear to them interesting. Had they been in the region for a longer time, or even in greater numbers, we might have had more data upon which to work.

On the other hand, the scarcity of archæological material may be due to the comparatively recent occupation of the area by Indians, or to a sparse population, if not to both of these causes. It is quite possible that the Plains were not thickly populated before the introduction of the horse, the acquisition of which, no doubt, gave a great impetus to migration throughout the entire Plains area.

The area, more particularly but roughly defined, includes the western half of the Dakotas, all of Nebraska, the western third of Kansas, Oklahoma, a wide strip north and south through Texas, all of Colorado except a small portion in the southern part of the State, Utah with the exception of a small area in the southeastern part, Nevada, Wyoming, Idaho, Montana, and the vast adjacent portion of the British possessions. It includes, among great natural divisions, the upper valley of the Missouri, that of the Platte, the Upper Arkansas, the Great Basin, the Upper Columbia Valley, the Yukon Valley except near the mouth, the Mackenzie Basin, and the area draining into Hudson Bay. Linguistically the area embraces all of the territory inhabited by the peoples of the Kiowan and Kitunahan stocks, and the greater part of the areas inhabited by those of the Siouan, Shoshonean, Caddoan, Athapascan, and Algonquian stocks. The Siouan, Shoshonean, and Athapascan areas correspond to that part of the region regarding which we are in perhaps the greatest need of archæological data.

This whole area separates, or is in part bounded by, the Pueblo and cliff-dwelling culture-area, that of the Mississippi Valley, that of California, and those of the North Pacific coast and the plateaus of Washington and southern British Columbia as now outlined. An exploration of it would probably exactly define the limits of these culture-areas and the presence or absence of an intermediate culture area or areas.

It must be remembered that pottery of certain well-known kinds is one of the great characteristics or marks of individuality of the Pueblo area and of the prehistoric culture of the Mississippi Valley and forest area to the northeast, while, on the other hand, no ancient pottery is known from the California area or the Northwest coast. Both of these latter regions are so well known, that the absence of pottery, or at least its great scarcity, is determined; but its presence in the wide northern area of the interior of British America is possible. It is true that pottery has been found in Alaska which closely resembles that from the adjacent portion of Siberia. The art of making it may have come from Siberia; so that it does not necessarily lead us to expect to find pottery in the Upper Yukon, the Mackenzie Basin, or, in general, in the Canadian Northwest.

In 1904 I called the attention of the Anthropological Club of Harvard University to the need of archæological investigation in the area lying between the plateau region of southern British Columbia and the cliff-dwelling and Pueblo region of the Southwest, pointing out at the same time the absence of pottery in the former area, its great development in the latter, and the interest which we have in defining the line separating the region where pottery was made from that where it was not made.

The need of archæological work in this vast territory is felt by students of historic ethnology. As has already been mentioned, they have started well in working up the area, and they would certainly be interested in the prehistoric relations of their problems. The length of time the various parts of the area have been inhabited, the history of every culture that has developed there, the modification of such cultures as may have been brought into the territory, their causes, and the migrations into and round about over the area, — all these may be mentioned among the problems to be solved.

It is true that in this region we may hardly expect to find archæological material comparable to that found in the Southwest, Mexico, and Peru, especially the kind that would appeal to architects, artists, travellers, and students of modern history. But, however entertaining it might be to contribute to these subjects: it is the professional duty of the archæologist work is not done solely to meet the needs of those interested in these subjects; it is the professional duty of the archæologist to reconstruct prehistoric ethnology even in fields that are held to be barren or largely so, and negative results are helpful in arriving at a knowledge of the prehistoric ethnology of the whole of our continent.

Judging from what we know, however, we may expect to solve a number of problems by working over this area. It would seem advisable to conduct this archæological work in co-operation with students who are investigating living tribes; for a study of the modern Indian of a certain spot throws light on the archæology of the region, and an understanding of the antiquities of a given place is helpful in the study of its natives. Furthermore, by this system, the continuity of historical problems is met by a continuity of method.

In selecting successive fields of operation, it would seem best to continue explorations in an adjacent area, sufficiently distant from those already examined to present new conditions and give promise that new facts may be discovered, possibly a new culture-area. At the same time a new field of operations should be so near, that no unknown culture-area may intervene. Thus the limits of culture-areas may be determined and new areas be discovered. This method of continuing from past fields of exploration makes valuable the experience gained there in each successive field, while the discoveries in every new region may always lead to a better understanding of the areas previously explored. If the results obtained in an area are not yet printed, the light thrown upon them by later work is at once available for the original publication.

In accord with this plan, it would seem best that those explorers who are familiar with the Pueblo and cliff-dwelling region should examine the adjacent part of this vast area, especially in Kansas, where remains of pueblos are known to exist, and in the basins which drain into the Colorado and the Rio Grande. To define the limits of Pueblo culture would certainly be of interest to them, while at the same time their exploration in the adjacent country would add to the data needed by their co-workers.

In like manner the anthropologists of California are no doubt nearly as familiar with the prehistoric ethnology of Nevada as are those interested in the Pueblo region. Probably they will be more interested in it; and from their active investigation of the cultures of the prehistoric inhabitants of their State, who depended so much upon that natural product the acorn, we are led to look to them for the examination of the region between California and the great Cañon of the Colorado. It would seem best that those who have explored in the Lower Columbia Valley and the plateau region of Washington and southern British Columbia should push their investigations eastward throughout the area drained by the Columbia and the Snake, thus attempting to define the eastern limits of the Plateau culture, to bound it, and to further our knowledge of it. Again, the explorers of the Mississippi Valley are perhaps best fitted to investigate the western limits of the culture found there. Some of these individuals are already interested in the prehistoric migrations of the Mandan, who are thought to have taken a northwesterly course from the Mississippi to the Missouri. The Historical Society of North Dakota has begun an investigation of the antiquities of its own State. Therefore archæological investigations in North Dakota may probably be largely left to that society. The Historical Society of Nebraska has expressed a desire to advance archæological research in its State, and possibly it may be able to explore even more than that part of the field.

From another standpoint, the ethnologists interested in the historic Indians might take up prehistoric ethnological work, — students of the Siouan groups in the Siouan area, those of the Shoshonean group in the Shoshonean area, and students of the Athapascan group in the Athapascan area. By following this line of investigation, the work of just these men would clarify the problems of the whole situation.

THE SCANDINAVIAN THEORY OF INDO-EUROPEAN ORIGINS.

BY ERNST RICHARD.

FOR a long time comparative philology seemed to be the only science which interested itself in the problem of the relationship and origin of the nations that spoke the so-called Indo-European, Indo-Germanic, or Aryan languages. The field of the young science was so rich in unexploited treasures, that it was some time before investigators began to question the correctness of its first conclusions, and to discover that linguistic evidence did not afford sufficient foundation for anthropological or ethnological theories, and that language alone could not tell us the history of the civilization of a period from which no written tradition, no monuments of stone or metal, have been preserved.

The fine diagrams that adorn our school and college textbooks, intended to represent the pedigree of the Indo-Europeans, cannot be made to agree with the results of science, no matter what arrangements of "branches" are tried. JOH. SCHMIDT offered his ingenious "Wellentheorie," which was greatly admired by his colleagues, but which failed to carry with it universal conviction. Compromises have been made, other theories have been advanced, and what once was accepted almost as an axiom has been so discredited, that to-day hardly any philologist dares talk of one ancestral nation as having spoken the original language from which all the Indo-European languages have been derived, and of which they may have formed, at a remote time, only slightly varying dialects. It must be said, to the credit of the philologists and of their science, that this revision of first assumptions is not due to outside criticism, but that, by patiently following their own methods, they have found the fallacy of the hypotheses of the founders of the science, and, with almost suicidal intellectual honesty, they have given up long-cherished theories. Surely a science which, by applying its own methods, has been able to discover the error of its most respected results, cannot be declared bankrupt, as has eagerly been affirmed to be the case by some outside critics.

The strengthening of national feeling in the second half of the nineteenth century has given to the question of the origin and the relationship of civilized nations an extraordinary prominence in the interest of wider circles; and the problem has been taken out of the cool atmosphere of scientific investigation into the heat of public controversy, of national pride and international antagonism, and, last but not least, of the rivalry of specialists.

It has been said that the whole problem in itself is worthless, that even a satisfactory solution is of no value, and that the search for it is only the craving of national, or, rather, racial vanity. But the search for our origins has a deeper motive than national vanity: it is a very important element of religious feeling. The man who tries to prove his descent from what he believes to be the superior race takes the superior mind of this race to be the emanation or manifestation of the spirit of the universe. It is a more spiritual modification of the biblical conception of the chosen people; from this authority he derives his mission as the leader of the nations to a better, a higher life. If this be vanity, it is at least a kind of vanity nobody need be ashamed of.

Of course, this emotional aspect of the question cannot find the approval of objective science, but it is at the bottom of what is called the "anthropological conception of history," which for the present seems to be in the ascendancy. To push aside these tendencies by characterizing them as "dilettantism" will not be sufficient, for its representatives do not find their following with the half-educated only. They are not to be defeated by pointing at an insufficiency of facts from the scientific point of view, since they claim that "emotional intuition," that "immediate knowledge," to be an equal factor with reason and experience in the structure of science. Even a scientist of established renown cannot entirely avoid being influenced by this modern tendency, not only when he leaves the pale of his specialty, but sometimes even in judging of facts in his own scientific field of investigation. The influence of his racial predilection, unconscious as it is, does not work in one direction only; for sometimes the scholar, whenever his conclusions seem to be favorable to his own nation and race, is filled to such a degree with a fear of appearing partial to his own relations, that, from over-conscientiousness, he refuses to give them what is right.

While we find these tendencies, perhaps, at work mostly among German authors, still the prophet of the new school is a Frenchman, Count GÒBINEAU; and the race question was first brought to public attention shortly after the Franco-German war, by another Frenchman, DE QUATREFAGES, who, with all his authority as one of the foremost anthropologists, "promulgated the theory that the dominant people in Germany were not Teutons at all, but were directly descended from the Finns."[1]

This general interest may be the reason why, in spite of the apparent inability of finding a satisfactory solution, the *ignorabimus* of many investigators has not been accepted, and renewed efforts have been made to reconcile the results of the different sciences. I speak of different sciences, for the question of Indo-European origin has long ceased to be a monopoly of comparative philology. The philologists themselves, recognizing the inadequacy of their science to cope with the problem, began to consult anthropology, and, more recently, archæology. This seems to increase the confusion. No matter how competent an authority a representative of any one of these sciences is in his own specialty, he is a layman as to the other two studies; and, even if he has made himself sufficiently familiar with the facts of the other sciences, he is looked upon with suspicion by those of the "other shop." It is indeed sad to see some of the authorities ridicule and belittle the efforts of an author belonging to another science, and berate his ignorance, while the critic himself betrays at least an equal lack of familiarity with the commonest facts of the other's specialty. In a late review, for instance, I find a great anthropologist sitting in judgment on a book dealing with the present question. He is probably quite correct in his anthropological objections; but the assertiveness of his style leaves a bad taste in the mouth when we find that he himself is so innocent of the linguistic aspect of the question that he still believes Sanskrit to be the language nearest to the primitive Indo-European mother-tongue.

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[1] RIPLEY, The Races of Europe, p. 219.

It is instructive, but discouraging, to see the way in which the *Fachautoritäten* tear to pieces, for instance, LUDWIG WILSER's recent book.[1] I have no doubt — in some instances, where I am able to judge for myself, I know — that many of his assertions are scientifically not well founded; still, this man put forth the theory of the Scandinavian origin of the Indo-Europeans twenty-four years ago, before any one else, and he has maintained it almost alone these many years, until now it is accepted by many of the best authorities. Outside of the specialists, the book has been very favorably received, and will have a greater influence in shaping the views of the educated reader than will its critics. If it is really impossible for any single man to gain sufficient control of the facts of the three sciences, would it not be advisable to abandon this animosity and fierce rivalry, and rather let a number of unprejudiced anthropologists, archæologists, and philologists join in an investigation as to whether the results of the different sciences cannot be harmonized?

The difficulty of getting a clear view of the subject from a short presentation of the recent development of the theory of Indo-European origins, as it appears in German publications, has made it seem necessary to me to give so much space to general considerations. The race theories have now for some years commanded a great deal of interest outside of scholarly circles in Germany, especially under the impulse of such books as HOUSTON STEWART CHAMBERLAIN'S "Die Grundlagen des XX. Jahrhunderts." The conclusive work for the last century has been done by O. SCHRADER, who, in his two standard works,[2] gives a comprehensive view of the history of the problem, and his reasons for placing the origin of the parent language in the lowlands of the Volga River.

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[1] Die Germanen (Eisenach and Leipzig, 1904).

[2] Sprachvergleichung und Urgeschichte (second edition, translated by Jevons), and Reallexicon der indogermanischen Altertumskunde; the first parts of the third German edition of the former work have appeared since this article was written.

The more extensive studies of our problem published in Germany in this century are inclined to agree that southern Scandinavia, Jutland, and the country south of the western Baltic Sea, form the locality where the people who first spoke an Indo-European language developed their racial peculiarities, or, at least, were living before they branched out to spread over Europe and Asia. We may call this the Scandinavian theory in a wider sense, leaving the question open whether we shall ever be able to confine the supposed *Urheimat* to the boundaries circumscribed by the purest representatives of the "Indo-European type" in southern Sweden. The first important publication of the century was that of MATHAEUS MUCH.[1] It was followed by an extended article by GUSTAF KOSSINNA.[2] The last contribution is by HERMANN HIRT.[3] Since Hirt's book represents the latest phase of the problem, I think it best to make his argument the centre of this survey.[4]

To begin with the name "Indo-Europeans." I prefer to use this term, as it has the widest scope. The use of the term "Aryans" for the whole group is undesirable, in spite of all tradition and the part the name plays in anti-Semitic controversies, since this term is restricted to the Indo-Iranian group. The term "Indo-Germanic" owes its origin to the opinion that the Indian Aryans and the Germanic nations formed the extreme ends of the line of nations, and not to the national vanity of the Germans, as RIPLEY insinuates. But it seems to hurt the sensibilities of some non-Germanic nations, so it may be just as well to agree on "Indo-European." At all events, philology has taught us that to call the whole family, or its ancestors, Aryans, is decidedly wrong; and certainly anthropologists, who deny the existence of a racial unity altogether, should not insist on using it, as it will give rise to misunderstandings.

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[1] Die Heimat der Indogermanen im Lichte der urgeschichtlichen Forschung. Berlin, 1902.

[2] Die indogermanische Frage archaeologisch beantwortet (Zeitschrift für Ethnologie, Berlin, 1902, Vol. XXXIV, pp. 161–222).

[3] Die Indogermanen, ihre Verbreitung, ihre Urheimat, und ihre Kultur (Strassburg, 1905), Vol. I.

[4] Compare especially HIRT, l. c., pp. 176–196.

Of course, the search for the cradle of the Indo-European family of nations presupposes the belief in the existence of an Indo-European race or type anthropologically distinct. Nobody will contend that there is an anthropological relationship of the nations speaking the Indo-European languages to-day; but it is equally certain that these languages have a common origin, and that there must have been a nation who spoke that original language with some dialectical variations, and who must have brought it to those parts of the globe where its branches are used in historical times. Indeed, for most branches, this immigration is within the reach of historical evidence, or, at least, of very sound prehistoric reasoning. These immigrants were of a long-headed, blond, and tall type, — traits which are found in their greatest purity to-day in southern Scandinavia, Jutland, and northern Germany. What RIPLEY concedes to be the fact for Europe — that the traits which he calls Teutonic "have become distinctive of a dominant race all over Europe"[1] — holds good as well for the representatives of the Indo-European language family in Asia. Moreover, anthropological evidence, supported by legendary tradition, mythology, and literature, — which represent gods and heroes as blond and tall, — permit the conclusion that there has been a conquest by a race with such characteristics. In speaking of Indo-Europeans in this essay, we mean, therefore, not the nations who speak one of the related languages of that family, but the immigrants or conquerors who spread this language over Europe and parts of Asia.

Since philology has discarded the view that Sanskrit represents the most archaic form of language, — that is, was most closely related to the original Indo-European language, — the defenders of the Asiatic origin of the Indo-Europeans have lost their strongest point; and, of all the arguments brought forth in favor of this view, only one is thought by recent writers worthy of consideration. This is the influence, pointed out by JOH. SCHMIDT, of the Babylonian duodecimal, or rather sexagesimal, system of numbers, on the decimal system of the Indo-European languages. "But," says Hirt, "the Babylonian culture is so old, and its influence is so extensive, that any current starting from there may have reached Europe. Indeed, we must say, that this civilization is so momentous, that a residence of the Indo-Europeans in the mountainous regions of the Mesopotamian frontier would lead us to expect much more decisive influences than those comparatively meagre ones in the numeral system."[1]

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[1] RIPLEY, l. c., p. 469.

It would take too much space to show that the assumption of a northern origin would make the grouping of the single branches, and the wanderings to be assumed, fit into the whole of known historical facts and linguistic conditions to a much higher degree than would any other theory. Discussing Ratzel's theory that "a single migration never has led to a lasting expansion of habitation," Hirt finds that a separated racial branch will preserve its nationality under especially favorable conditions, as they are offered, for instance, by mountainous regions. He points out that we find the southern Indo-Europeans exclusively in mountainous regions, whither they were forced to retire from the fertile plains on account of the lack of supplementary migrations from the parent stock. Here, after generations, over-population forced them to descend again into the plains. Besides, there were climatic reasons to recommend the higher regions to the northern settlers, their cooler climate giving them a better chance of acclimatization, while perhaps the smaller number of primitive inhabitants facilitated the adoption of the language of the new-comers.[2]

Accordingly, Hirt finds the original home of Indo-Europeans in the territory where they form the greatest continuous mass; that is, the region comprised to-day by northern France, Germany, and western Russia. At a certain time the western wing of Indo-Europeans, speaking the western languages, might have lived west of a line from Königsberg to the Crimea, since the equation for the name of the beech-tree (Ger. *Buche,* Lat. *fagus,* Celt. *Bacenis silva,* Greek, *φηγός*) places them within a region where the beech-tree is indigenous, the name being transferred in Greece to the oak. East of this line, which would make the Vistula River the boundary, we find the East Indo-European wing, to which the Letto-Lithuanians (Balts), the Slavs, and the Indo-Iranians belong. The relationship of the languages makes this original grouping highly probable. If we assume that the ethnical expansion will spread equally in all directions, the centre of expansion must naturally be the seat of the parent tribe, which, in our case, will be the region on both banks of the Vistula. HIRT,[1] accordingly, is inclined to find it very probable that here the home of the Indo-Europeans is to be found. But if he takes the Vistula to form a dividing-line sufficiently strong to explain the differentiation of the *centum* and *satem* languages, he can only refer to a secondary stage of Indo-European development.

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[1] Hirt, l. c., pp. 177 et seq.

[2] Ibid., pp. 179 et seq.

It is true that the wanderings of all Indo-Europeans would find easy explanation from this centre, near which we find located the Letto-Lithuanians, who, according to the present stage of linguistic research, have preserved the most archaic form of Indo-European language. If we would, with Schrader and others, place the original home in the steppes of southern Russia, the migrations of the Germans and Celts would offer almost insurmountable difficulties to an agreement with historical and philological facts.

The results of linguistic science make it certain that the country in which the Indo-Europeans originated must have been densely wooded. The animals and plants of the northern forests were familiar to them. The Russian plain has been bare of forests, probably from the earliest times, since the squirrel, which is not found in the forests of the Crimea, has not been able to cross it.[2] The sea was not unknown to the Indo-Europeans, and it was a sea in which the eel was living, — a fish which is found in the Baltic and North Seas, but not in the Black Sea and its tributaries.[3]

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[1] HIRT, l. c., p. 183.

[2] Ibid., p. 188.

[3] Ibid., p. 186.

A very important argument for the lowlands of the Volga is taken from the assumption that the parent Indo-European nation was nomadic, since, indeed, there would be no room for nomads in any other part of Europe. But HIRT offers a convincing mass of evidence that they were not hunters, nor fishermen, nor nomads, but had reached the agricultural stage of economical development before they separated.[1] Agriculture does not need so much room, yet more arable land can easily be had by clearing; but, in general, the peasant will protect the forest, which furnishes material for tools and fire.[2] Another fact that speaks against the nomadic life has already been pointed out by V. HEHN, who shows that the horse, although known to the Indo-Europeans, was not used for riding or driving.

The investigations of KOSSINNA and MUCH introduce archæological arguments into the problem. They both come, although by different ways, to about the same conclusions. They confine the territory in question to the lands surrounding the western part of the Baltic Sea, including Jutland, so that the original home of the Indo-Europeans and the Germanic nations would be identical. Neither Much nor Kossinna thinks his results conclusive. But what Kossinna says, especially of the spreading of certain northern types of pottery (the spheric amphora, the Bernburg type), agrees very well with the conclusions of the linguists as to the grouping and migrations of the branches. The period in which the most important separations took part is, in accordance with the results of comparative philology, the later neolithic age and the time of transition into the bronze age. He assumes an early separation of the eastern group, which, during the stone age, still took its abode for a time in southern Russia, where the Slavs and the Asiatic branches developed.[3] The archæological conditions warrant the assumption of two currents of migrations southwards along the valleys of the Elbe and the Oder.[4]

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[1] HIRT, l. c., pp. 242–271.

[2] Ibid., p. 190.

[3] GUSTAF KOSSINNA, Zeitschrift für Ethnologie, Vol. XXXIV, pp. 184 et seq.

[4] Ibid., p. 212.

We have seen that the physical type, which we may well call the Indo-European, is found almost pure in southern Scandinavia, Denmark, and northern Germany. There is no reason why the results of philology and archæology should not warrant us in connecting the people of this type with the Indo-European language. They have occupied this territory, as anthropologists concede, at least as far back as the earliest period for which the beginning of the branching-off may be assumed, and the archæological finds show that no break in their culture-development has occurred, no matter how strongly southern influences have been at work; while immigration of another anthropological type is undoubted, still the new-comers have been confined to a very narrow strip at the shores of the sea, and have not produced any considerable changes. There may be anthropological reasons for ridiculing the efforts to combine the results of anthropology with those of philology and archæology, but so far it is hard for a non-anthropologist to see them. RIPLEY, for one, fails to make true his promise to show that "all attempts to correlate linguistic data with those derived from the study of physical characteristics are not only illogical and unscientific, but they are at the same time impossible and absurd."[1] He may possess sufficient data to warrant this rather strongly worded statement, but they ought to be given in such a way that a person of average intelligence and education, trained in scientific thinking, though not particularly in anthropology, might see them.

The question how these people reached these localities is not of importance for our problem. But to suppose that man, at the end of the glacial period, may have followed the reindeer, does not seem — again in the modest opinion of the layman ready to learn better — so absurd, either, as he certainly would have preferred to follow his usual mode of life, rather than become accustomed to a new environment. And against the contention that the reindeer did not live in connection with man in the part of Europe in question, there are other authorities that tell us of finds of tools made of reindeer-horn, and of bones of men and reindeer found in the same tombs.

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[1] RIPLEY, l. c., p. 454.

The geographical conditions favored the undisturbed development of the blond, tall, long-headed northerners in an environment adapted to the breeding of a sturdy, intelligent race. The impenetrable forests and swampy river-valleys prevented immigration from the continental side. Though there was easier access by sea, no large masses could arrive by that way in primitive times. But what kept off the outsider was not sufficient to hold back the surplus when over-population set in. Again and again a part of the population left the crowded country, wandering along the river-valleys and the lowlands to east and west. We see this process still going on in historic times. The Germanic tribes, without exception, have their tradition that points to the north, to Scandinavia, as their home. We have no right to belittle the value of this testimony. Historical criticism has not shaken it. The length of time must not necessarily have extinguished all memory of a past that is relatively not so very distant. It is said that lately a caldron has been found in Mecklenburg that had been buried for two thousand years in a place which popular tradition had always designated as a spot where a treasure was hidden. Less time may have elapsed between the first written reports of the Goths, the Langobards, etc., and the epoch when their ancestors left their seats on the Baltic Sea.

We have seen that HIRT came to the conclusion that the home of the Indo-Europeans would be found in a rather vast territory, with the mouth of the Vistula as a centre of radiation, and that the archaic language of the Lithuanians points to their country as the probable region of origin. While he is very positive in excluding Asia and southern Russia, he is not very explicit in stating his reasons against the valley of the middle Danube. Still, even HIRT feels attracted to the Scandinavian theory. He himself points out that the fact that Lithuanian is the most archaic, the least changed, of Indo-European languages, affords no conclusive proof that the Lithuanians must live nearest to the place of origin. It may be supposed that the Lithuanians immigrated into sparsely settled districts, and that therefore their language was not influenced by foreign elements.

"We do not need, therefore," he says, "to look for the original home of the Indo-Germans just in Lithuania. If, however, we look for it in the ancient Germanic territory, the fact should not be overlooked, that the Germanic languages underwent marked changes at a rather early period; and this is the only reason which keeps me from identifying most decisively the original home of the Indo-Germans with that of the Germanic nations."[1]

HIRT refers, of course, to the change of accent and to the so-called *Lautverschiebung,* which gives to the Germanic languages their distinctive character. He does not find any other explanation for such decided changes in language than the influence of foreign ethnical elements, a strong admixture of people of a foreign language. If there were another race living in the eastern Baltic province, circumscribed sufficiently above, before the immigration of the ancestors of the present inhabitants, it must have been at a period much earlier than the epoch in which the Indo-European origins must be placed. The immigration of the Alpine type, traces of which are found along the shores of the North Sea, may, indeed, have had some influence. Though it appears to have been rather too limited to explain such strong effects, this invasion seems to have occurred about the time of the change from stone to bronze implements, and of the introduction of cremation for burial, which means a great revolution in religious ideas, — indeed, a combination of events which may have convulsed the psychic life of the people.

This may have had some influence on language. However, the investigations of WUNDT[2] permit us to assume other influences on the change of language than that of mixture with other nations and races. Natural environment and cultural development play, according to his view, an equally important part.[3] As to the change of accent and the permutation of consonants of the Germanic languages, he points out that both processes extended over an exceedingly long period, and still continued after the division of the nations, — in the Old High German period, for instance. He compares the first, the common Germanic *Lautverschiebung,* with the second, the High German, which took place in the light of historic times. He cannot find that any mixture of race will account for these phenomena. "The processes in both," he says, "are too much alike, too identical in general tendencies, even in comparison with the analogous phenomena in other branches of the Indo-Germanic family of languages. Furthermore, especially does the second permutation show only too plainly its spontaneous origin in its historical expansion. Therefore, although language-mixtures may have had their influence on other sides of phonetic development, — on vocalism, modulation, accent, rhythm, — those changes of the consonants will probably have proceeded from inner conditions, originating in the language community itself."

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[1] HIRT, l. c., p. 196.

[2] Völkerpsychologie (Leipzig, 1900), Vol. I, Part I.

[3] WUNDT, l. c., p. 397.

The acceptance of this theory will remove the stumbling-block which prevented the great linguist from accepting the Scandinavian theory of Indo-European origins.

I have purposely omitted the argument based on the construction of an Indo-Germanic psychical type. It is here that the fancies of the "anthropological historians," like WOLTMANN, make one extremely cautious. Conceded that there be such a type, it may find its explanation in the northern origin, but it could hardly be used as an argument to establish it.

The conclusions reached at the present stage of the problem, then, appear to be these, — that serious difficulties are in the way of the localization of the Indo-European parent tribe, or nation, or group, either in Asia, or in any part of Europe outside of the Baltic plain, Jutland, and Scandinavia; that philological and archæological considerations make it highly improbable that the people whose ancestors occupied the western Baltic shores and their *Hinterland* for a period reaching farther back than the formation of the Indo-European languages, and who have preserved the physical type that history and tradition point out as the original Indo-European, are the descendants of the stock from which the carriers of the Indo-European languages branched off to be physically absorbed by other races, while their languages survived; and that it is almost certain that southern Scandinavia, Jutland, and the lands between the lower Elbe and Oder, contain the cradle of the Indo-European family of languages.

We can accept for this hypothesis the concluding words of HIRT: "In accepting the northern origin of the Indo-Germans, we find the best analogies as to their expansion. Their migrations are, in their chief traits and in principle, not different from those of the Celts, the Germanic nations, and the Slavs.

"Without having the support of historical testimony, we may be allowed to distinguish between two forms of expansion, — the gradual extension at the boundaries and the expansion by conquering expeditions. In the fourth century B.C. the Indo-Germanic language had undoubtedly spread over the whole of northern Europe, from central and eastern France to central Russia; while advanced columns had reached, and in part Indo-germanized, the three southern peninsulas. At all events, the expansion is not uninterrupted. Separated from the great stock, the Asiatic branch is located in Iran and India."[1]

This great gap between the Asiatic and the European members of the Indo-European family may perhaps find an explanation in the movements of the so-called "Alpine" race, which, starting from Asia, has crossed the paths of Indo-European wanderings.

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[1] HIRT, Die Indogermanen, Vol. I, pp. 196 et seq.

EINE VILA MIT SECHS FLÜGELN.

EIN BOSNISCH GUSLARENLIED AUFGEZEICHNET UND MITGETEILT

VON FRIEDRICH S. KRAUSS,
WIEN.

UNSER Franz Boas erinnerte mich stets aufs lebhafteste an Werner Munzinger, dessen Werk über die Sitten und das Recht der Bogos (Winterthur 1859) auf mich einen so tiefen Eindruck machte, dass ich den Versuch wagte, ein Seitenstück dazu mit meinem Buche über Sitte und Brauch der Südslaven (Wien 1885) zu schaffen. Neben anderen mitstrebenden Forschern wie Bastian, Post, Pitrè, Gaidoz, Gatschet, Mooney und Karl von den Steinen gewann Boas allmählich auf meine wissenschaftliche Entwicklung einen nachhaltigen Einfluss, weshalb ich ihm zu seiner bleibenden Ehrung mein Jahrbuch Anthropophyteia zueignete, dessen ersten Band ein Geleitbrief aus seiner Feder schmückt. Munzinger ist in seinen besten Mannesjahren ermordet worden; Boas dagegen war es beschieden, ausserordentliche Lebensgefahren glücklich zu überstehen und mit seinen grundlegenden Ermittlungen die ethnologische Forschung, zum Überfluss auch in methodischer Hinsicht, allseitig auszubauen. Wenn es heutzutage selbst die verbissensten Vertreter geheiligter scholastischer Disciplinen in Europa nicht mehr laut wagen, Ethnologie und Folklore öffentlich zu verhöhnen, weil unsere Wissenschaft weder auf Lob noch Billigung jener mehr ansteht, so ist dies mit ein Verdienst von Boas. Soweit man in der Welt Volks- und Völkerforschung hegt und pflegt, erkennt man freudig Boas als einen der führenden Geister an, und man feiert ihn, nur er selber feiert nicht; im Gegenteil, wir sind zur Hoffnung berechtigt, von ihm noch viele und wertvolle Arbeiten und Anregungen zu empfangen. Der folgende Beitrag möge ihm, gleich den übrigen hier vereinigten, mittelbar als Ausdruck unserer freundschaftlichen Gesinnung gelten, die wir für ihn wegen seiner bedeutenden Leistungen und seines Charakters nähren.

Die Gebrüder *Mujo* und *Halil,* so erzählt unser Guslarenlied, zogen, um zu pirschen, ins Hochgebirg und erjagten eine *Vila.* Das ist der südslavische Ausdruck zur Bezeichnung der in Frauengestalt auftauchenden Baumseele. Im fünften Abschnitt meines Buches, Volksglaube und religiöser Brauch der Südslaven (Münster i. W. 1890, S. 68–109) handelte ich eingehend, doch lange nicht erschöpfend, über den Vilenglauben, musste jedoch davon absehen, die Verbreitung dieses Glaubens bei anderen Völkern zu beleuchten. Das hole ich aber alsbald in einem neuen, umfangreichen Buche nach. Man wird aus der grossen Menge von Belegen ersehen, dass, wenn ein Glaube, so gewiss dieser allgemein menschlich ist.

Eine Vorahnung davon besass bereits WILHELM MANNHARDT, dessen bedeutsames Werk über den Baumkultus der Germanen und ihrer Nachbarstämme nun in zweiter, leider unveränderter, Auflage erschienen ist. Mannhardt zählt eine längere Reihe von Waldfrauennamen aus verschiedenen, vorwiegend europäischen Sprachen auf und bemerkt, dass alle diese Wesen eine einzige Sippe von Waldgeistern bilden. So kostbar seine Funde im einzelnen auch sind, und so voll Geist und richtiger Beobachtungen seine Arbeit ist, so krankt sie doch an der Voraussetzung, dass sie den Begriff einer Sippe aufstellt, wo keine vorhanden ist. Nehmen wir an, dem Globetrotter Leberecht Baum fiele es ein, weil es ihm seine Mittel erlauben, alle Völker der Erde zu besuchen und sich in jedem Lande durch Übersetzung seines Namens in die fremde Sprache und durch Anlegung der landesüblichen Tracht zu nationalisiren, zum Überfluss sich überall in Photographieen verewigen zu lassen, dürften wir seine Hunderte von Bildern als eine Sippe bezeichnen? Bliebe er für uns nicht immer derselbe Herr Baum, der er war, und als den wir ihn seit jeher kannten?

So und nicht anders steht es mit der Waldfrau im Völkerglauben. Es ist immer ein und dieselbe Gestalt, ob männlich oder weiblich, ob gut oder schlecht gelaunt, die uns in verschiedenen Verkleidungen und in verschiedenen Abenteuern entgegentritt. Nie verläugnet sie bei näherer Betrachtung ihre wahre Natur, und verstehen wir sie in ihrer Ursprünglichkeit, so kann sie uns ebensowenig wie besagter Herr Baum oder eine Schauspielerin in verschiedenen Rollen über ihr eigentliches Wesen täuschen. In diesem Erkennen der Persönlichkeit beruht der Fortschritt der rein folkloristisch-ethnologischen Auffassungsweise. Meine Fragestellung ist überaus einfach und demgemäss auch die Antwort, weshalb eine grosse Menge von Gelehrtheit, die so häufig ermüdet, als unnötig wegfällt. Auch die Menschen, die am primitiven Baumseelenglauben festhalten, sind nicht gelehrt und spitzfindig. Um ihr Denken zu begreifen, muss man ebenso schlicht und arglos wie sie zu denken versuchen.

Wir Deutschen haben für die Waldfräulein allein an vierzig Namen, die Südslaven bloss zwei, *Vila* und *Samovila* (d. h. die allein heimende Vila). Ich sammelte die einschlägigen Überlieferungen von rund dreihundert Völkern. Die Verschiedenheiten sind unter ihnen nirgend wesentlich, sondern jeweilig von der geographischen Provinz bedingt. Durch Einsetzung von slavischen Namen könnte einer ohne weiteres einige von Mooney aufgezeichnete irische Sagen den südslavischen Bauern wiedererzählen, und sie würden sie als ihr eigenes Glaubensgut betrachten. Nicht viel grössere Schwierigkeiten fände er bei amerikanischen Indianern mit der Erzählung serbischer Vilensagen.

Bei den Maya in Yukatan heisst z. B. die Baumseele *Xtabai* (shtabai). Hin und wieder wollen Leute an einsamen Plätzen in Dörfern und Weilern zu später Nachtzeit ein Weib in Mestizentracht gesehen haben, wie sie ihr schönes Haar mit der Samenschale einer gewissen Pflanze kämmte. Sie ist allen Eingeborenen unter dem Namen *Xache Xtabai* wohlbekannt. So sich einer diesem Weibe nähert, flieht sie, ihre Schritte bald hemmend, bald beflügelnd, bald auf Augenblicke verschwindend, bald wieder sichtbar einhaltend, als ob sie einen ihr folgenden Liebhaber herankommen lassen wolle. Sobald dann einer im glücklichen Wahn das schöne Mestizenweib umarmen zu können vermeint, drückt er ein Bündel Dornen und Reisig an sich, das auf Spindelbeinen steht, so dünn wie die eines Truthahns. Nach solcher Enttäuschung überkommen dann den elend Betrogenen lange und schwere Leiden, begleitet von heftigem Fieber und Aussersichsein, ja, selbst der Tod.

Die Omaha- und die Ponka-Indianer glauben an ein „kleines Volk," die *Gadazhe* oder *Ni'kashinga Ma'ntanaha* (wilde Leute), die den Menschen unter der Haut, ohne sie zu verletzen, Wunden beizubringen vermögen (Hexenschuss, Vilenpfeil). Diese Geister hausen in den Wäldern. Sie verursachen dem unglückseligen Indianer, der ihnen zufällig fern von seinem Stamm oder seiner Ansiedlung begegnet, eine eigene Art von Krankheit, indem sie sich seiner bemächtigen (Dorsey).

Bei den Cherokee heisst die männliche Pflanzenseele *yûnvi usdi* (der kleine Mann), die weibliche aber *selu* (das Korn), und sie wird unter dem Namen *Agawe'la* (die alte Frau) angerufen. Wie bei den Germanen die Waldfrau und bei den Serben die Vila, belehrt auch Agawe'la ihren Liebling und erteilt ihm gute Ratschläge. Mooney sammelte in seinem berühmten Werke über die Cherokee mehrere sehr lehrreiche Sagen, die man dort nachlesen mag. *Selu* deckt sich mit dem deutschen *Årnkind* (Ährenkind), dem englischen *Kirnbaby* (Kernkind), dem russischen *Polevik* (Ackerfeldgeist) und natürlich auch mit der *Vila* der

Serben, die wir aus nachstehendem Guslarenliede als eine Art von Wunschjungfrau kennen lernen.

Text.

Crna tvica prikorila Muju.

'Age śjede, hladno piju vino
u 'Udbini u pjanoj meáni
trijes ága i više četiri
i prid njima tri áge carove:
jedno ti je gāzi Ćejvanaga
a drugo je kladuški Hrnjica
a treće je od Orašja Tale.
Sastale se silne poglavice:
od Arčića oba Kurtagića
a od Bišća Popržemoviću
a do njega Struić bajraktare
a do njega Krakić Osmanaga;
od Osika Silić Jusupaga,
Hadži Omer od Tatar budžaka,
do njeg Meho starog Ćejvanage
i dva sina Mustajbega li(č)kog
Mehmed rani i Drvišbeg śnjime
a do njiha Krakić Osmanaga
i pobro mu Gjulić bajraktare
i pobro mu Blažević Omere
a do njiha Naranović Huso
i dva brata dva Uvlakovića
i dva brata oba Kurtagića.
Do njih dedo Strundža Mahmutaga;
do Ćerima vrsnog bajraktara
i gāzija Delibašić Ahmo
ogrušane i glave i brade.
Do Ahmeta Šestokriloviću
od Požege grada bijeloga,
beg Durutbeg i Eminbeg śnjime;
od Krajine Vidirlijić mali,
od Budima Omer Velibegoviću
i dva pobra oba Čekrklića;
do njih sio Pločanin Alija

i od Bišća Kositeroviću,
od Posušja Odobašić Suša
i pobro mu Gojenović Meho.
  Svije dvori Osman bajraktare.
U ruci mu čaša i mješina
pa on redom poji krajišnike
od Hrnjice do najzadnjeg druga.
  O svačem su sobet zametnuli
o junaštvu i konjma dobrijem
i doklen je koji dolazio
i debela konja dojonio,
gje je tanku kulu porobio
i pośjeko kuli sahibiju,
odnio mu gizdavu djevojku.
  ‘Age piju, razgovaraju se.
  Mujo šuti, ništa ne beśjedi.
Niz vilice poklopio brke,
pali su mu do pušaka malih,
prekrili mu toke na prsima;
śjaje mu se toke na prsima
kajno mljesec jeli kroz ogranke.
  A veli mu trides krajišnikce:
  — Jēr Hrnjica ne phāliš gjogina
i ne kažeš ti svoje junačtvo?
  A veli hin buljubaša Mujo:
  — Progjte me se, moje ắge drage!
ja sam trides porobio kula
a pośjeko trides poglovica
i odnio trides djevojaka,
oženio trides bajraktara,
silazio do Janoka grada
i široke Ungjulurovine,
dost, jä dost san nakupio blaga,
više ću se četovanja proći!
  U ta ‘Alil meắni na vrata.
Odvalio vrata u meắne,
mukom sluša čim se phali Mujo;
dok zareče nagojak ‘Alile:
— Muči Mujo, i n’jesi za četu!
Dok su drugi za te četovali,

junak bio Hrnjica Mustapha!
Da ti nije tvoga brat 'Alila,
da ti nije Ćejvanage gāzi
i Osmana mlada bajraktara
i Taline okovane pale,
davno bi ti vlasi kindisali,
našu bjelu bastisali kulu
i majku nam u roblje odveli!
Ve se kani buljubaštva Mujo
pa ga podaj za koga i jeste!
A na nj Mujo oči iskolači,
nu balčak mu poljećela ruka,
śćadijaše brata pogubiti!
Ne dadoše áge krajišnici.
Dok zareče Cejvan dēdo stari:
— Oba brata, svoj krajini krila,
što ste s danas māmom pomamili
prit tolikim ágam i spahijam
a crnite obraz od krajine?!
Ako ćete mene poslušati
a vi hajte u gustu planinu,
ko će lovak bolji učiniti —
pa što kome bog i sreća dade
na kome će ostat buljubaštvo!
A zavika od Orašca Tale
— Ako ga poslušat ne ćete
palu ću vi razbiti o glavu,
nek je mirna sva butun krajina!
Zamukoše Mujo i 'Alile,
jer što reče privariti ne će
a stid jih je braće krajišnika
od serhata i od ćenaara.
Kad u jutro jutro osvitalo
podignu se Mujo pa 'Alile
od 'Udbine krvave krajine
prije danka i ranog osvanka
lov loviti na Kunaru pustu.
Dobro ti se braća okrjepila
garli kahvom i rakijom ljutom.
na široke konje prośjedaše.

Mujo jaše široka gjogina,
spored njega gojeni 'Alile.
'Alil jaše bijesna malina,
Mujo nosi sivoga sokola
a 'Alile lutvu tvicu sivu.
Pa kad bili na Kunaru pustu,
na Kunaru, zelenu bunaru,
ondi bješe šestokrila vila,
ona mi se u jezeru kupa.
Sagleda je Mujo i 'Alile.
Kad vidjoše šestokrilu vilu,
Mujo pušti sivoga sokola,
'Alil pušti lutvu tvicu sivu.
Uvatiše šestokrilu vilu.
Tūni mi se braca zavadiše
oko one šestokrile vile.
Mujo veli: Uphati je moj sokole sivi!
A beśjedi gojeni 'Alile:
— Ā moj brate, buljubaša Mujo,
nije soko uphatio vile,
veće moja lutva uphatila!
Tūni mi se braća zavadiše
oko one šestokrile vile.
Kad se tūni braća zavadiše,
nuto vidi buljubaše Muje,
on poteže mača zelenoga
pa udara svoga brat 'Alila,
na maču mu srce izvadio.
'Alil pade u zelenu travu.
Nu da vidiš buljubaše Muje,
turi vilu za gjogata svoga
a priveza bijesna malina
a malina mila brata svoga
a pośjede bijesna gjogina.
Eto Muje niz Kunar planinu
i on igje drumom čavlenijem.
Va kad bio drumu i bogazu,
va na drumu nalazio tvicu,
jednu tvicu crnoga gavrana,
i gavran je prez desnoga krila.

Beśjedi mu Mujo sa gjogata:
— Va boga ti crna tvica vrana,
Kako ti je prez desnoga krila?
— Ja boga mi buljubaša Mujo,
meni jeste prez desnoga krila
kao tebi prez tvog brat ‘Alila!
A kad Mujo razumi beśjede:
— Jaoj meni do boga miloga,
crna mene tvica prikorila
u Kunari visokoj planini,
otkud mene turci prikoriti ne će
u ‘Udbini krvavoj krajini
u kahvama i još maánama!
Pa se natrag Mujo povratio
ne bi l brata živa zastajao
u Kunari visokoj planini.
A kad Mujo u Kunara dogje
al mu bratac svijet mijenio.
A kad vigje buljubaša Mujo,
on poteže mača ot pojasa
i sebe je mačem udario
na mača je srce izvadio.
Tūni oba brata pogiboše
u Kunaru visokoj planini.
Uteče mu vila u oblake!
„Ima još, ja ti je dilje ne znam.“

VERDEUTSCHUNG.

WIE EIN SCHWARZER VOGEL MUJO STRAFEND ZURECHTGEWIESEN HAT.

Zu Udbina in der trunknen Schenke sitzen die Agen beisammen und trinken kalten Wein, es sind ihrer vierunddreissig Agen und an ihrer Spitze drei kaiserliche Agen: der eine ist der Glaubensstreiter Ćejvanaga, der andere Hrnjica von Kladuša und der dritte Tale von Orašje.

Allda hatten sich die mächtigen Häuptlinge versammelt; von Arčić die beiden Kurtagić und von Bišće Poprženović und neben ihm Struić, der Fähnrich, und neben ihm Krakić Oma-

naga; von Essegg Silić Jusufaga, von Tatar Budžak Hadži Omer, neben ihm Meho, des alten Ćejvanaga [Sohn] und die zwei Söhne des Mustajbeg von der Lika, der frühgeborene Mehmed und mit ihm Drvišbeg und neben ihnen Krakić Osmanaga und sein Wahlbruder Gjulić, der Fähnrich, und dessen Wahlbruder Blažević Omer und neben ihnen Naranović Huso und die zwei Gebrüder, die zwei Uvlaković, und die zwei Brüder, die beiden Kurtagić. Ihnen reiht sich der Greis Strundža Mahmutaga an; neben Ćerim, dem trefflichen Fähnrich auch der Glaubenskämpfer Delibašić Ahmo, dem sowohl Haupt als Bart grauweiss erschimmert. An Ahmets Seite Sestokrilović von Požega, der weissen Stadt, mit ihm Beg Durutbeg und Eminbeg; vom Grenzgebiet Vidirlijić, der Kleine, von Ofen Omer Velibegović und die zwei Wahlbrüder, die beiden Čekrklić; neben ihnen liess sich nieder Alija von Ploča und Kositerović von Bišće, Odobašić Suša von Posušje und sein Wahlbruder Gojenović Meho.

Als Mundschenk wartet allen Osman der Fähnrich auf. In seiner Hand das Glas und den Schlauch, tränkt er der Reihe nach die Grenzer von Hrnjica angefangen bis zum letzten Gefährten.

Über alles und jedes führten sie Gespräch, [sprachen] vom Heldentum und den guten Rossen, und wie weit der eine und der andere gedrungen und sein feistes Ross gejagt, wo einer eine schlanke Warte ausgeraubt und den Gebieter der Warte niedergesäbelt und dessen schmucke Tochter entführt.

Die Agen trinken und unterhalten sich.

Mujo schweigt, spricht gar nichts. Sein Schnurrbart bedeckt ihm die Kinnladen, die Schnurrbartenden fielen ihm herab bis zu den Kleingewehren, bedeckten ihm die Buckelknöpfe auf der Brust; die Buckelknöpfe erglänzen ihm auf der Brust, wie der Mond durch das Gezweig der Tanne.

Da sprechen zu ihm die dreissig Grenzer: Ei, Hrnjica, warum rühmst du deinen Falben nicht und hebst nicht deine Heldentaten hervor?

Doch spricht der Rottenhäuptling Mujo zu ihnen: Lasst mich in Frieden, meine teuren Agen! Ich habe ihrer dreissig

Warten ausgeraubt und dreissig Häuptlinge niedergesäbelt und dreissig Mädchen davongeschleppt, dreissig Fähnriche beweibt, bin hinabgestiegen zur Burg von Janok und ins breite Ungarland, genug, fürwahr genug, an Schätzen habe ich angesammelt, von nun ab werde ich die Beutezüge aufgeben!

Inzwischen [erschien] Halil an der Schenkentüre. Er riss an der Schenke die Türe in der Breite auf und hörte stumm zu, womit Mujo prahlt. Da fiel ihm Halil der Zögling ins Wort: Verstumme, Mujo, taugst doch gar nicht für den Kriegspfad! Während andere für dich auf Abenteuer auszogen, so lange galt Hrnjica Mustapha als ein Held! Hättest du nicht deinen Bruder Halil, hättest du nicht den Glaubenshort Ćejvanaga und Osman den jungen Fähnrich und stünde dir nicht Tales damascirter Pallasch bei, schon längst hätten dich die Italiener aus der Welt geschafft, sie hätten unsere weisse Warte zerstört und unsere Mutter in die Sklaverei weggeführt! Daher, Mujo, entsage endlich der Rottenhäuptlingschaft und übergib sie dem, dem sie auch gebührt!

Da riss Mujo gegen ihn die Augen grimmig weit auf, seine Hand flog ihm rasch auf den Säbelgriff hin, er war daran, den Bruder ums Leben zu bringen!

Das gaben die Agen, die Grenzritter, nicht zu.

Da fand das Wort Ćejvan, das alte Grossväterchen: Ihr beiden Brüder, Fittiche dem ganzen Grenzland, was seid ihr heut von hellem Wahnsinn ergriffen vor so vielen Agen und Rittergutsherren und besudelt schwarz das Angesicht des Grenzlandes?!

Wofern ihr meinen Rat befolgen wollt, so begebt euch in das dichte Hochwaldgebirg [um zu sehen], wem ein trefflicheres Gejaid gelingt, und wie es einem Gott und das Glück bescheert [das möge dartum], bei wem die Rottenhäuptlingschaft verbleiben wird!

Da schrie Tale von Orašac auf:

Falls ihr ihm nicht gehorchen mögt, so werde ich meinen Pallasch an eurem Kopf zerschlagen, damit Ruhe im gesamten Grenzgebiet herrsche!

Mujo und Halil verstummten; denn was der sagt, das ist bei ihm keine trügerische Rede; es erfasst sie aber auch Scham vor den Grenzern vom Grenzgebiet und dem Landrain.

Als nun am Morgen der Morgen schimmerte, erhoben sich Mujo und Halil von Udbina, dem blutgetränkten Grenzland, vor dem liebtrauten Tag und frühen Dämmerlicht, um im wüsten Kunargebirge Jagd zu pflegen.

Die Gebrüder kräftigten sich gediegen mit bitterem Kaffee und scharfem Branntwein, dann schwangen sie sich auf die beiden Rosse hinauf.

Mujo reitet den breiten Falben, neben ihm der Zögling Halil.

Halil reitet den wütigen Kleinfuchs, Mujo trägt den grauen Falken, und Halil den Habicht, den grauen Vogel.

Und als sie auf dem wüsten Kunar, beim grünen Gewässer auf dem Kunar anlangten, trafen sie allda die Vila mit den sechs Flügeln an, die im See badete.

Mujo und Halil erschauten sie. Als sie die Vila mit den sechs Flügeln erblickten, liess Mujo den grauen Falken, liess Halil den Habicht, den grauen Vogel, schiessen. Die fingen die Vila mit den sechs Fittichen ein.

Allhier gerieten die Gebrüder um den Besitz jener Vila mit den sechs Flügeln in Streit.

Mujo spricht: Mein grauer Falke fing sie ein! Dagegen wendet Halil der Zögling ein: Ei, mein Bruder, Rottenhäuptling Mujo, nicht der Falke fing die Vila ein, vielmehr hat mein Habicht sie eingefangen!

Allhier gerieten die Gebrüder um den Besitz jener Vila mit den sechs Flügeln in Streit.

Als dahier die Brüder in Streit geraten, da schau dir mal den Rottenhäuptling Mujo an! Er zog sein grünes Schwert heraus und hieb auf seinen Bruder Halil ein; am Schwerte zog er ihm das Herz heraus. Halil sank ins grüne Gras hinab.

Nun sollst du mal den Rottenhäuptling Mujo sehen! Er schob die Vila hinter seinen Falben und band den wütigen Kleinfuchs an, wohl den Kleinfuchs seines geliebten Bruders und schwang sich auf den wütigen Falben auf.

Da eilt schon Mujo abwärts vom Kunarhochwaldgebirge und zieht dahin über den steilabfallenden Landweg.

Als er sich aber auf dem Weg im Engpass befand, da stiess er auf dem Wege auf einen Vogel, auf einen Vogel, einen schwarzen Raben, und diesem Raben fehlte der rechte Flügel.

Vom Falben herab spricht zu ihm Mujo:

So Gott dir helfe, du schwarzer Vogel Rabe, wie geht es dir ohne rechten Flügel?

So wahr mir Gott, o Rottenhäuptling Mujo, mir ergeht es ohne rechten Flügel sowie dir ohne deinen Bruder Halil!

Als da Mujo dieser Rede Sinn begriff, [rief er aus]: Weh mir bis zum lieben Gott hinan, mich strafte ein schwarzer Vogel im Kunar, dem hohen Waldgebirg, wie sollten mich nicht erst die Türken strafen zu Udbina, im blutgetränkten Grenzland, sowohl in den Kaffee- als den Weinschenken!

Und Mujo kehrte um, in der Hoffnung, den Bruder noch am Leben anzutreffen im Kunar, dem hohen Waldgebirge.

Als jedoch Mujo auf den Kunar hinaufkam, da hatte bereits sein Brüderlein diese Welt [mit der anderen] vertauscht.

Wie nun dies Rottenhäuptling Mujo sah, zog er das Schwert aus dem Gürtel hervor, stach sich selber das Schwert in den Leib hinein und riss sich mit der Schwertspitze das Herz heraus.

Allhier kamen beide Brüder auf Kunar in dem hohen Waldgebirg ums Leben.

Die Vila entfloh ihm in die Wolken!

"Es gibt noch mehr [von dem Liede], doch ich weiss es dir nicht weiter [aufzusagen]."

ANMERKUNGEN.

Am 4. März 1885 kehrte ich in dem zum Dorfe Ajdanović des Bezirkes (*džemat*) *Olovo* in Bosnien gehörenden Einzelgehöfte des katholischen Landmannes Marko Mitrović ein. Das Blockhaus liegt tief im Tannenwalde versteckt und weit ab von den übrigen Gehöften, die ich übrigens gar nicht sah. Ein Guslar zu *Kladanj* hatte mir von Marko erzählt, er wäre ein trefflicher Sänger, und darum suchte ich ihn auf. Marko war bei meinem Anblick zu Tod erschrocken, weil er, wie er mir späterhin gestand, als wir miteinander vertraut geworden, im Glauben war, ich wäre von der Behörde zu seiner Verhaftung abgesandt worden. Zur Zeit des Aufstandes hätten ihn drei Wegelagerer genötigt, mit ihnen als ihr Trossbub (*torbonoša*) im Land umherzustreifen. Nachdem die drei ermordet worden, sei er wieder heimgekehrt und lebe in Frieden. Marko war damals etwa vierzig Jahre alt, kräftig, von untersetzter Gestalt und dunkelfarbig. Er machte auf mich den Eindruck eines gutmütigen Menschen. Für die Recitation von Liedern nahm er von mir keine Entlohnung an, freute sich aber sehr, dass ich frisches Ziegenfleisch mitgebracht. Er schnitt es zu kleinen Würfeln, warf es in einen kleinen Kupferkessel, tat Zwiebeln, Salz und Paprika mit etwas Wasser dazu und liess das Mahl an starkem Feuer gar werden. Er beteiligte sich daran mit grossem Vergnügen; denn da seine Hausleute auf dem Felde und im Walde arbeiteten, war das für ihn buchstäblich ein gefundenes Essen, sonst hätte er sich mit einem Stück Brod und Zwiebeln begnügen müssen.

Das vorliegende Lied hörte er noch als Knabe — etwa um das Jahr 1855 — von dem seither schon verstorbenen Herzogländer *Milija Radovanović* zu den Guslen vortragen. Wie man aus seiner Schlussbemerkung erfährt, war ihm das Ende des Liedes entfallen. Für uns ist es ohne Belang, weil es wohl nur die Totenfeier behandelt haben mag, ich aber derartiger Schilderungen genug in anderen Guslarenliedern besitze und einige davon auch schon veröffentlicht habe.

Im Gespräche mit mir unterliefen ihm auch zwei Sprichwörter, die ich gleich zur Aufzeichnung des Liedes mitnotirte, und die ich hier zur Charakterisirung des Mannes wiederhole. *Da je pamet do kadije ko od kadije sve bi bilo onda dobro* „Hätte man den Verstand bis zum Kadi, den man hat, wenn man vom Kadi weggeht, dann wäre alles gut," und *Hajduk i vuk pobratima* „Der Wegelagerer und der Wolf sind Wahlbrüder."

Marko bewahrte im Text den Grundzug der herzogländisch-serbischen Mundart, sonst aber dringt stark die bosnische Mundart des Bezirkes von Olovo durch, deren Charakteristik die Aspiration der Vokale und des *p* zu *ph* bildet. Auch *k* und *t* werden aspirirt, doch tritt dies nicht beständig und stets klar hervor, weshalb die nähere Bezeichnung in der Niederschrift unterblieb.

V. 32, V. 131 und V. 165 sind mehr als zehnsilbig. Ein wirklicher Verszwang liegt nur in Zeile 32 vor, in den anderen zwei Fällen hätte sich der Guslar leicht helfen können. In V. 106 ist *ćenaara* eine dem Silbenmasse oder dem Rhythmus zu liebe gemachte sprachwidrige Dehnung, in V. 167 dagegen *maânama* ein echter Sprachfehler.

In V. 3 und 4 gibt der Guslar die Zahl der anwesenden Grenzritter auf 37 an, die Aufzählung der Namen zeigt jedoch ihrer um 3 weniger, weil Krakić und die beiden Kurtagić zweimal genannt werden (V.

12 = V. 18 und V. 9 = V. 23). Dass sich aber V. 129 f. mit V. 136 f. decken, gehört zu den dichterischen Stileigentümlichkeiten des Guslarenlieds im allgemeinen, ebenso wie die stereotype Wendung *u Kunari visokoj planini.*

Die Aufzählung so vieler Namen kommt uns etwas langweilig vor, nicht aber dem Guslaren und seinem heimischen Zuhörerkreis; denn bei diesen Leuten löst jeder Name die — wieder durch Guslarenlieder bewahrte — Erinnerung an Abenteuer der einzelnen Helden aus. Mit gleichem Interesse mögen wohl die Hellenen dem Vortrag der Rhapsoden, die den Schiffskatalog zum besten gaben, gelauscht haben.

Zu Vers 3 ff. Warum der Guslar gerade diese drei Kämpen kaiserliche Herren nennt, ist nicht gut verständlich, denn alle drei gehörten zum Heerbann Mustajbegs, des Befehlshabers der Lika, der zu Udbina residirte. Um den Einfällen chrowotisch-magyarischer und dalmatisch-venezischer Freischärlerbanden mit Nachdruck zu begegnen, förderte die türkische Regierung um die Mitte des XVII. Jahrhunderts im slavisch-bosnischen Grenzgebiet die Bildung moslimischer Banden, deren Häuptlinge (*buljukbaše, četobaše*) dem Militärgouverneur unterstanden. Mujo, zubenannt *hrnjica* (die Hasenscharte), auch *trbušina* (der Grossbauch) war mit seinem Bruder Halil aus Albanien eingewandert. Als Fremdling sass er auf der herabgelassenen Türe eines Marktladens in Kladuša, als eine Rotte von Räubern im Orte erschien, um die Kaufleute zu brandschatzen. Die Geschäftsleute waren bereit, die Auflagen zu zahlen, Mujo aber griff zu den Waffen, schlug den Räuberhäuptling tot und verjagte die Gefolgschaft. Durch diese Tat lenkte er die Aufmerksamkeit Mustajbegs auf sich, der ihm zur Belohnung die Erbauung einer befestigten Warte zu Kladuša erlaubte und ihn zum Četobaša ernannte. Er sammelte eine Schar verwegener Gesellen um sich und im Verein mit seinen Unterführern Ćejvanaga von Kladuša, Tale von Orašje, Suša von Posušje und seinem Bruder Halil, den er zum Waffenhandwerk erzog, war er wohl zwei Jahrzehnte lang der Schrecken des Nachbargebietes. Von seinen Abenteuern künden über dreihundert Guslarenlieder. Eine wohlverbürgte Überlieferung berichtet, einer seiner ihm aufsässigen Waffengefährten habe seine Flinte mit Dukaten geladen und ihn, der als unverwundbar galt, auf diese Weise bei Travnik aus dem Hinterhalte erschossen. Unser vorliegendes Lied gibt freilich ein anderes Ende des Helden an, indem es wohl ein anderes Ereignis auf den beliebten Helden der Guslarenlieder überträgt.

Zu V. 28. Šestokrilović, d. i. der Sohn des mit sechs Flügeln versehenen. Als Freund des Prinzen Marko wird Rȩlja, *krilatica,* Rȩlja der Beflügelte genannt, den ein Agramer chrowotischer Akademiker zu einem urchrowotischen Gott erhob. Er ernannte in seiner „Religion der Serben und Chrowoten" (Ausgabe der chrowotischen Akademie!) auch Mujo und Halilen zu Göttern. Man muss dem Nationalismus solche Ubertreibungen milde nachsehen. In Wirklichkeit hatten jene Helden nichts Göttliches an sich, sondern trugen zur Erhöhung des Eindrucks ihrer Persönlichkeit an ihren Panzern aus Goldblech Flügel, die bei jeder Bewegung ihres Trägers klapperten. Der Burgherr von Požega hatte an seinem Panzer gar sechs Flügel angebracht, und daher sein Beiname. Da eine Vila als Baumseele auch fliegen kann, so versieht sie der Guslar mitunter auch mit sechs Flügeln. Es ist zu bemerken, dass die Prosaüberlieferung nur Vilen mit zwei Fittichen kennt, und selbst die sind für gewöhnlich unsichtbar. Im Bedarfsfalle sind sie auf einmal da.

Zu V. 39. Die slavischen Moslimen tranken Wein zu jener Zeit noch frank und frei. Man bewahrte ihn in Bocksschläuchen auf. Alle trinken aus ein und demselben Glas, denn Glas war damals dortzulande noch eine grosse Kostbarkeit und Seltenheit.

Zu V. 46. Die Helden rühmen sich der begangenen Mord- und Schandtaten, weil solche Handlungen zu ihrem ehrlichen Berufe gehören.

Zu V. 55, *mljesec* für *mjeseć;* V. 59, *hin* für *im;* V. 67, *san* f. *sam;* V. 83, *ve* f. *več* oder vielmehr *vet;* V. 100 fehlt der Auftakt; V. 151, 152, 156, *va* für *å* oder *a;* V. 157 und 160 *prez* f. *brez* oder *bez;* V. 125 *vidjoše* f. *vidješe* oder *vigješe;* V. 79. *u ta* f. *to*.

Zu V. 64. Er berühmt sich, er habe seine Kämpen mit geraubten Mädchen und Frauen, natürlich Christenfrauen aus vornehmen Häusern, vermählt, während er doch solche Beute für teueres Geld an Liebhaber auf dem Markte losschlagen konnte.

V. 65. Janok ist Ancona in Italien. Die Helden waren gelegentlich auch Piraten.

V. 66. Ungjulurovina = Ungjurovina = Ungjurus, Hungaria. „Breit" heisst Ungarn wegen seiner endlosen Ebenen.

V. 75 ff. Als Häuptling einer Freiwilligenschar behauptet sich Mujo in seiner Würde, solange als ihn seine Rotte als ihren Führer anerkennen mag. Von einer Auflehnung gegen ihn berichtet ein anderes Guslarenlied. Ćejvan und Halil mit ihrem Anhang sagten sich im Hochgebirg von ihm los und zogen selbständig ins Dalmatische, um eine Burg zu plündern. Mujo blieb mit Suša und einer Schar kampfungewohnter Neulinge zurück. Ćejvan und Halil gerieten mit dem Dalmater in Kampf und erlebten eine furchtbare Niederlage. Während sie der

Dalmater mit seinen Mannen verfolgte, kam Mujo auf einem anderen Wege zu dessen unbewachter Burg, plünderte sie gründlich und steckte sie in Brand. Als der siegreiche, doch ermattete Burgherr zurückkehrte, tötete ihn Mujo. Darauf unterwarfen sich im Hochgebirge Ćejvan und Halil wieder der Führung Mujos. — Die in unserem Liede geforderte Tüchtigkeitsprobe, welche die Würdigkeit der streitenden Brüder erweisen sollte, ist als eine Art von Gottesurteil aufzufassen, wie dergleichen öfters vorkam. „Gott und das Glück" entschieden sich jedoch gegen beide Brüder. Es ist zu betonen, dass *bog* (Gott) in dieser Verbindung näher dem altindischen *bhagas* als dem jüdisch-christlichen Gott (Jehova) steht. Die Helden auf ihren Abenteuerzügen geben sich äusserst selten als Moslimen oder Christen. Sie sind sich dessen bewusst, dass sie sich mit ihrem Beruf von der bürgerlichen Gesellschaft losgesagt; damit verzichten sie gleichzeitig auch auf deren Glauben und verfallen fast ganz dem alten Volksglauben, in dem aber die Baumgeister, die Vilen, in ihrer Vermenschlichung die wichtigsten Gestalten sind.

V. 119. *Lutva* oder richtiger *utva* (denn das *l* kam hinzu, wer weiss, aus welchem dunklen Grunde der Neigung zur Sprachverhunzung), heisst eigentlich eine Ente oder sonst ein fetter Vogel. Dem Sprachgebrauch der Serben ist das Wort seit Jahrhunderten schon fremd geworden und fristet noch in Guslarenliedern ein unverstandenes Dasein. In meiner Verdeutschung setzte ich dafür „Habicht" ein, hätte aber auch Sperber sagen dürfen, denn neben dem Falken richtete man auch Habichte und Sperber zur Jagd ab.

V. 121. *Bunar* ist unser deutsches Brunnen. Wie aus V. 123 deutlich hervorgeht, gebraucht der Guslar das Wort im Sinne von *jezero* (See), was ihm nicht zu verübeln ist, weil in seinem wasserreichen Wohnbezirke Brunnen in unserem Sinne gar nicht vorkommen dürften, und man gewohnt ist, seinen Wasserbedarf aus Quellen und Bächen zu decken.

V. 145. In prosaischer Erzählung würde der Guslar gesagt haben *sebi za gjogata* (sich im Rücken hinter dem Braunen). Die hinter dem Reiter zu Ross nach männlicher Art reitende Frau nennt der Reiter *zasobica.*

V. 150. *drumom čavlenijem* = auf einem Eisennagelweg. Auf steilabfallendem, felsigem Saumpfade behauptet sich das Ross am ehesten, wenn es breite, platte, tellerförmige Hufeisen hat, die mit starken spitzigen Nägeln an den Hufen befestigt sind. Die Hufe hinterlassen im

Gestein Spuren der Eisennägel, und darum heisst der Weg ein Eisennagelweg.

V. 151. „Als er auf dem Wege und dem Engpasse war." Hier ist ein Hendiadys.

V. 153. Der Rabe gilt als ein Unglücksvogel, der Unheil verkündet. Weil er sich von Äsern nährt, verachtet man ihn. Mujos Gedankengang ist: Wenn sich schon das verachtetste Geschöpf getraut, mich wegen meines Verhaltens dem Bruder gegenüber zu tadeln, wie werden erst die ehrenwerten Kämpen bei ihren Zusammenkünften über mich den Stab brechen! — Dies war auch für den Guslaren die Pointe des Liedes oder der Erzählung, und er benannte sie auch darnach, während ich als Folklorist den Fang der Vila als den merkwürdigsten Zug in der Geschichte betrachte und demgemäss dem Lied eine neue Überschrift gebe.

NOTE ON THE INTERPRETATION OF EUROPEAN SONG-GAMES.

BY WILLIAM WELLS NEWELL,

CAMBRIDGE, MASS.

THE survival in Europe of ancient dramatic rites, or, to borrow a term applied to the ceremonies of American aborigines, of old "dances," is to be sought in several directions; but the most interesting that remain, and in which the idea as well as the action is preserved, may be found in the "games" performed by children, who in such performance are by no means originators, but only maintainers of usages devised for the benefit of older folk. Considering the interest of the material, it is not easy to account for the scant attention bestowed on the subject. My own collection of English singing-games[1] was accompanied with brief comparative remarks, which, although in compass quite inadequate, still remain the only attempt at comparative treatment of European song-games. In the second edition (1903) lack of space has precluded possibility of bringing the account in any degree up to date.

Mrs. ALICE BERTHA GOMME'S[2] two volumes contain a gathering more extensive: while not many important games are added, the number of versions is greatly multiplied. One result of this publication has been to affect opinion regarding the relation of British and American song-games. At the time when my collection was made, according to the evidence then accessible, it seemed that while, generally speaking, the same games were current on both sides of the Atlantic, American versions usually differed from British. It was natural to set this distinction to the account of the variation which had taken place since the time of the settlement. It is a common experience, that a colony exhibits conservatism in the preservation of usages which in the mother-country have been superseded or modified. In accordance with this rule, American tradition appeared to retain with more faithfulness the old English stock. However, Mrs. Gomme's book showed that the actual difference was very much less than that indicated by previously printed examples. The variants are in many cases inferior to those obtained in America, and the tradition of the New World still appears, on the whole, superior; but this quality seems to be accounted for by the difference of generations. Mrs. Gomme drew nearly all her versions from the lips of children, so that the reports often exhibit corruptions incident to folklore in recent years; while the American forms, in considerable measure obtained from the memory of older persons, possess the characteristics of a time when the fountain flowed with greater purity, and was less tainted by modern vulgarity. Allowing for such contrast, the two traditions appear to be absolutely identical; it therefore becomes a matter of doubt how far the similarity is referable to the common preservation of ancient treasure, how far it is explained by continued culture-contact, which, incessantly acting through repeated immigration, has served to keep up the correspondence of British and colonial folk-lore. In many cases, I believe, the latter alternative is to be accepted.

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[1] Games and Songs of American Children, 1883.

[2] Traditional Games of England, Scotland, and Ireland, 1894–98.

Mrs. Gomme accompanies her games with explanatory remarks, and with a dissertation. In such discussion she does not enter on the comparative field, but, on the contrary, announces principles of interpretation, which, if adopted, would obviate the necessity of taking into account corresponding songs of other languages. According to her ideas, it is sufficient completely to collect and carefully to compare the games of one country. The underlying doctrine is, that in any particular linguistic region ancient traditional customs are transmitted with fidelity, independent of foreign communication; in order to obtain a conception of the primitive form belonging to any game, it is only necessary to tabulate all English variants; the traits accepted by a majority of versions will be original, while local eccentricity will represent divergence. On the same principle, the primal significance of any song-game will be shown by its existing form. If we have a game in which a lady asks another whether she has need of a servant, we may presume that the theme related to the old practice of hiring servants at fairs. If a wolf is represented as lurking about an enclosure with the object of stealing sheep, we may suppose that from its inception the play showed the habits of a predatory animal. It will not be necessary to look abroad, or go beyond the apparent properties of the modern amusement.

It is obvious that such is not the manner of inquiry pursued in the field of linguistics. In the latter case, we do not venture to determine from the relative frequency of modern usage which of several senses may have been the primary signification of a word. On the contrary, it is taken for granted that the modern habit may have been a late innovation. An outlying province may very well preserve an old usage now become dialectic, or a rare phrase may retain the original sense which has recently become obscure. It is only by reverting to early documents, or by the illuminating evidence of kindred languages, that the course of the evolution can be traced.

In folk-lore, comparative research has now established the principle that the West European stock is to be regarded as a common possession, varied in contiguous countries only as the dialects of any one speech alter the mother-tongue. This concordance is due not so much to common inheritance as to continued culture contact. The diffusion of traditions takes place without much regard to linguistic boundaries; exchange of ideas proceeding with nearly as much freedom as exchange of wares. Parallel with this barter is the continual development of traditional themes. From an old root, in some land which for the time being constitutes a centre of civilization, emerges a new variety suited to contemporary conditions. This novel species spreads with rapidity, crosses earth and sea, naturalizes itself in foreign parts, in each region assimilates characters peculiar to that country, and multiplies itself at the expense of earlier denizens of the soil. In the course of such extension, the descendant may suppress the ancestor. It may happen that the immigrant is itself a variety of a plant once peculiar to the particular clime, in which the primal type is now crowded out by an intrusive descendant. If these principles be accepted as fundamental, then it is obvious that respecting any one traditional growth no sound conclusions can be drawn, except through a survey of its entire habitat, and a comparison of its varieties as they appear in different flora.

In tracing the progress of song-games, the investigator who follows this method is hindered by the deficiencies of record. In western and central Europe the gleaning, save only in the Spanish peninsula, is tolerably adequate; Slavic collection, within the field of my knowledge, if not entirely sufficient, is at least considerable. In Greece, on the contrary, there is a lack of any proper exhibit, and such void is especially annoying, since this language would naturally form a link with the Orient. Asiatic gatherings are wholly wanting. Such absence is not a matter of indifference, since it is likely that some of the games have had currency in Asia. The gaps are therefore so considerable as to make a complete account impossible.

English dances fall into two categories, — first, those which are certainly ancient, and which must revert to ceremonial origins; secondly, those which are relatively modern, even although these also may have come into existence as offshoots of an ancient root.

As regards the first class, further limitation is to be made in the reflection, that even although, in the land of its origin, the dance itself may once have been ritual, it by no means follows that it has ever been so in an adopted country. The performance which in antiquity made part of a ceremony may in the middle ages have emigrated as a mere amusement, in the form of a song which recommended itself by its liveliness, and by the opportunity which it offered for love-making. It seems to me likely that this may have been the case in most or all English examples. Dances still ceremonial in the early Roman empire may have entered Romance languages as mere love-games, crossed the Channel to Britain, and there extinguished local usages of a corresponding nature.

As to the second class, there is great difficulty in determining what examples can be set down as comparatively recent. Especially may be noted those games, existing in a multitude of West European variants, which present crude accounts of courtship and marriage, followed by separation, lamentation, and re-union, either with the original partner or a new mate. These are susceptible of an explanation which would indicate them as survivals of very remote custom. As Mrs. GOMME[1] observes of one such performance: "The marriage signified by the game is acknowledged and sanctioned by the presence of witnesses; is made between two young people who choose each other without any form of compulsion; is accompanied by blessings upon the young couple, and prognostications of the birth of children. These points show that the marriage ceremony belongs to a time when the object of the union was to have children, and when its duration was not necessarily for life."

On the other hand, it may be argued that the concentrated brevity of the formulas, the rapid succession of partners, and the off-hand imitation of courtship and divorce, is in its nature unlikely to have been even mediæval. What we know of early custom would favor the idea that the persons participating, perhaps as masked and costumed actors, must in the first instance have enacted dramas of considerable prolixity, any one of which would have filled an evening; the actors would have represented persons of noted prominence, forefathers or divinities; any rapid vicissitude would have been quite out of the question. In the progress of abrasion and reduction, such primal fulness would have been lost. The dramatic portion of the play having long passed out of memory, and nothing being left but the action, each performer desired an opportunity to take an independent part. With the view of gratifying such aspiration, and of bringing the participants to equality, the history was by degrees eliminated, and the verse reduced to a few lines. If this be the true interpretation, existing games of this sort belong only to the last few centuries, and, far from standing as a reminder of pre-Roman Britain, signify nothing more than modern thematic decay, and the progress of modern democracy.

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[1] L. c., Vol. II, p. 277.

In regard to dances which have antedated mediæval time, inquiry must be conducted with the help of all existing versions, and with the aid furnished by literature. The conclusion I think will be that games of this sort have preserved with faithfulness early features, and contain a reminiscence of ceremonial usages perhaps originally Græco-Roman. The account of their ritual ancestry and their later evolution may in some part remain conjectural, but enough will be determined to form an interesting chapter in the history of civilization.

THE BIRD-CHARIOT IN CHINA AND EUROPE.

BY BERTHOLD LAUFER.

IN an interesting paper entitled "A Curious Aino Toy,"[1] EDWARD S. MORSE discusses a wooden toy, in the form of a bird on wheels, supposed to be of Ainu origin. Although the idea of wheels, foreign to this tribe, is evidently borrowed from the Japanese, yet Morse had never come across such a toy in Japan. He further figures a similar wooden specimen pertaining to the Yakut in Siberia, and another excavated by Flinders Petrie in the cemetery of Hawara in Egypt, dating back not later than the first century of our era. Morse sets forth the opinion that "this toy might naturally have originated among a civilized people like the Egyptians, who portray wheeled chariots in their early rock sculpture," and concludes that "certainly, unless it can be shown that any kind of an object provided with wheels originated among a savage people, it does not seem an absurd conjecture to suggest the common origin of this toy even among peoples so widely removed in space and time as those above mentioned."

1. These wheeled birds have a much wider dissemination in Eastern Asia than is indicated by Morse, and they form in particular a distinct type among the Chinese antiquities of bronze and nephrite. A number of these have been described and illustrated in the archæological literature of the Chinese. Before reviewing the latter, I will first refer briefly to some actual specimens which have become known to me. Plate XXXIII shows a bronze piece of this kind[2] representing a winged bird,

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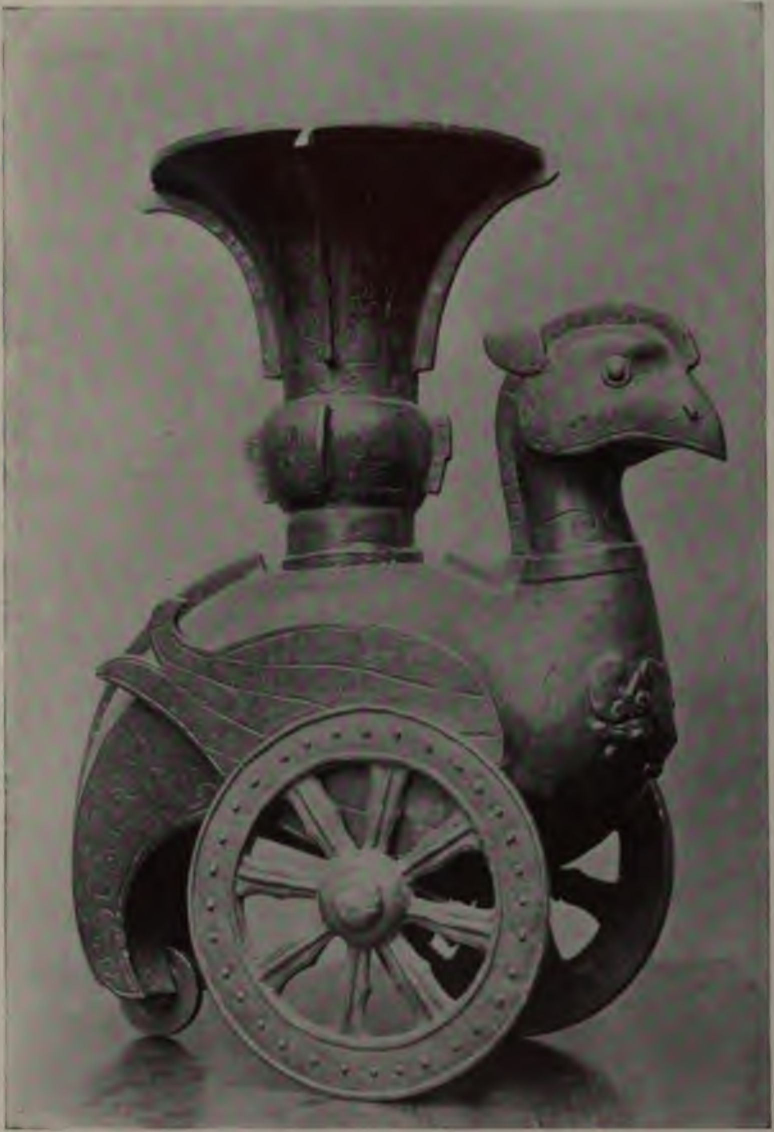
[1] Bulletin of the Essex Institute, Salem, Mass., Vol. XXV, pp. 1–7.

[2] It is in the possession of my friend, Dr. August Conrady, professor of Chinese at the University of Leipzig, who acquired it at Peking, and to whom I am indebted for his kindness in placing a photograph of it at my disposal. The height of the object is 24.7 cm.; from the bill to the tail-wheel it is 22.3 cm. long; the length of the bird's body is 17.2 cm., and its width is 7.7 cm.



BRONZE BIRD-CHARIOT, CHINA.

with long tail curved downward, resting on two large wheels, and a small wheel attached to the end of the tail. On its back the bird carries a sacrificial vessel of the type called *ts'un*. A curious head is brought out in relief on the breast of the bird. Spiral ornaments are engraved on its body, and the graven lines on the wings seem to be intended to indicate plumage.

I do not hazard a conjecture as to the period in which this object may have been made, as I had no opportunity to examine it; but I may say that my general impression would favor a rather recent origin, which I infer chiefly from the modernized formation of the wheel, almost identical with that of the usual North-Chinese travelling-cart of nowadays. Then we must take into consideration the facts that, of genuine specimens of this type (i.e., such as come down from the periods of the Han and the T'ang), exceedingly few, if any, have survived, and, if such exist, they may be hidden away among the treasures of Chinese private collectors; further, that these very objects are imitated indeed in recent times, of which I had abundant opportunities to convince myself in specimens seen by me in China, the technique of which clearly stamped them as modern productions. These, as a rule, are made on a smaller scale than the antique ones, and easily betray themselves as epigones by the frequent applications of cloisonné enamel, and certainly by their deviation from the standard forms, by their inferior technique, by their plumpness of shape and their crudeness of execution. It is therefore a matter of some surprise to notice in Dr. S. W. BUSHELL's recent book[1] the figure of such a vessel positively ascribed to the Han dynasty. The object is much like that illustrated on Plate XXXIII, except that it is lower, and the wings of the bird are entirely concealed behind the wheels. Dr. Bushell, in his description, remarks that "the curious wheeled wine-vessels commonly called *chiu ch'ê tsun,* or 'dove-chariot vases,' are generally attributed to the Han dynasty (202 B.C.–A.D. 220)." Though this statement is undeniably correct, it certainly does not justify, without further evidence, the conclusion that the specimen in the South Kensington Museum is

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[1] Chinese Art, Vol. I, London, 1904 (Publication of the South Kensington Museum), Fig. 56 and p. 91.

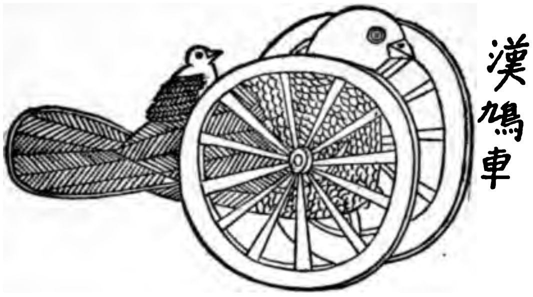

FIG. 19.

necessarily also a Han, as asserted in the descriptive matter under the figure. It is naturally impossible to speak positively either for or against its authenticity, without submitting the object in all details of its workmanship to a close inspection; nevertheless I cannot suppress the opinion that to me it seems, from the general appearance of its style and technique, to fall rather under the heading of the coarser ware above alluded to. Further comments of Dr. Bushell are as follows: "The bird of mythological aspect, which is supposed to represent a dove (*chiu*), has its tail curved downwards, and a trumpet-shaped vase-mouth with scroll-ornament and dragons, and displays on its breast a grotesque head moulded in relief. Two wheels support it at the side, and a smaller one at the tail, adapting it to circulate on the altar during the performance of the ancestral ritual ceremonies." I do not know whether the latter statement is the opinion of the author, or whether he derived it from a Chinese writer: I am unable to trace it back to any Chinese source (see end of § 3, p. 419).

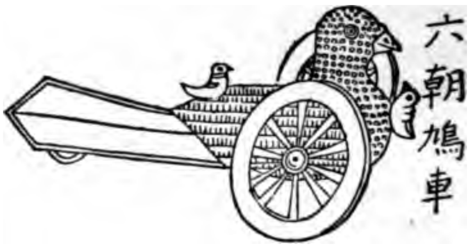

FIG. 20.

2. In the "Po ku t'u," Book 27, pp. 44 a and b, two so-called "dove chariots" are illustrated, the one (Fig. 19) attributed to the Han period,[1] the other (Fig. 20) to the age of the Leu

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[1] These illustrations are photographed from the edition published in 1753. The cyclopædia San ts'ai t'u hui, section on implements (Book 5, p. 9), gives a reproduction of this engraving with the text of the Po ku t'u, curiously enough grouped in the chapter "Means of Transportation."

ch'ao or Six Dynasties (A.D. 221–589). In the legends over the illustrations, the bird is designated with the one character *chiu,* which is explained as "turtle-dove" or "pigeon." In the accompanying descriptive text, however, the compound *shih* (Giles, No. 9901) *chiu* is used, which is interpreted by Giles as "the cuckoo" (*Cuculus canorus*), while other lexicographers take this compound also in the sense of a pigeon or turtle-dove.[1]

The definition of this object, given by the art-historian WANG FU (first half of the twelfth century), the author of the "Po ku t'u," is to the effect that it consists of two wheels, between which the dove is placed, so that it moves through the motion of the wheels. In both pieces, the large dove is conceived of as the mother-bird, which in the Han specimen carries her young one on the back, and in that of the Leu ch'ao, two young birds, — one on her breast, the other on her back. In the front part of both, there is, according to the description given, a perforated knob for the passage of a cord, by means of which, apparently, the chariot can be drawn. Of features not mentioned in the text, we notice that in the former (Fig. 19) the wheels are larger and provided with twelve spokes, in the latter (Fig. 20) with ten; in the first one, the head and neck of the bird are unadorned, its body is decorated with what appears elsewhere as scales on fishes or dragons, and the six hatched portions behind leave no doubt that they are intended to represent the tail-feathers. In the second object, head, neck, and breast are dotted over with small circles; the body is divided into ten rows with vertical hatchings; and instead of the rounded-off tail-feather of the preceding object, we find here a pointed angular piece to which, as is also expressly added in the text, a third small wheel is attached "to strengthen" the chariot. The opinion of Wang Fu is, that these objects served as amusements, playthings for young boys; and since there is nothing that would conflict with their character as toys, I see no reason for rejecting such an interpretation. This is further accounted for by the author with a quotation from Tu SHIH with the cognomen *Yu chiu tzŭ*,[1] to the effect that boys at the age of five years play with dove-chariots, while at the age of seven they enjoy the pleasure of the bamboo horse.[2]

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[1] COUVREUR (Dictionnaire classique de la langue chinoise, p. 1047 a), *shih chiu,* "huppe," "pigeon ramier." PALLADIUS (Chinese-Russian Dictionary, p. 528), *gorlitsa,* i.e., "turtle-dove." EITEL (A Chinese Dictionary in the Cantonese Dialect, p. 612 a) explains *shih* by "wood-pigeon," and *shih chiu* by "turtle-dove." Giles's interpretation evidently goes back to O. F. v. MÖLLENDORFF, The Vertebrata of the Province of Chihli (Journal of the North-China Branch of the Royal Asiatic Society, N. S., Vol. XI, Shanghai, 1877, p. 93): "*Shih chiu* has been explained as a kind of wood-pigeon or turtle-dove. But the description points evidently to the cuckoo; more especially the mention of the habit of that bird of not building nests, but laying its eggs in the nests of other birds, would not admit of any other identification." According to the investigations of T. WATTERS, Chinese Notions about Pigeons and Doves (Journal of the North-China Branch of the Royal Asiatic Society, New Series, Vol. IV, Shanghai, 1868, p. 229), *chiu* is a generic term for doves, *shih chiu* is a wood-pigeon or a dove of some sort (p. 238). The term *shih chiu* occurs in the Shih king (JAMES LEGGE, The Chinese Classics, Vol. IV, Part I, p. 222; Shih king, ed. COUVREUR, p. 157), where Legge translates it by "turtle-dove," Couvreur by "hoopoe." The meaning "cuckoo" would hardly be commensurate with the passage in question, as the *shih chiu* is here introduced as the symbol of filial piety and maternal love, a notion which is attributed by the Chinese just to the dove (see T. WATTERS, l.c., p. 236). The Chinese statement given above, on which Möllendorff's identification with the cuckoo is based, is an idea which seems to go back to the verse in the Shih king: "The nest is the magpie's; the dove dwells in it" (J. LEGGE, l.c., p. 20 and note p. 21); but this does not justify us in assigning to the word *chiu* or *shih chiu* the signification of "cuckoo," even though a confusion of the two birds be admitted. An engraving of this dove (*shih chiu t'u*) from T'u shu chi ch'êng, Vol. 579, ch'in ch'ung tien Book 28, chiu pu hui k'ao, p. 3 a, is reproduced as a vignette at the beginning of this paper.

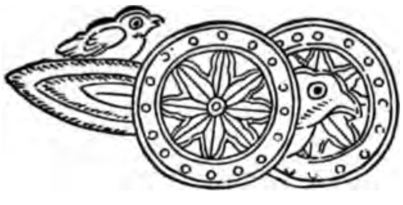

FIG. 21.

古玉鳩車

Fig. 21 represents a dove-chariot of white nephrite, reproduced after an engraving in the "Ku yü t'u p'u" ("Illustrated Book of Ancient Jades"), Book 47, p. 12, compiled by LUNG

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[1] In the Ku yü t'u p'u (Book 47, p. 13 a) the same quotation is given as derived from a book Kin hai (The Golden Sea), with the *varia lectio* that boys at the age of *six* play with the dove-chariot, and at *seven* with the bamboo horse.

[2] Hobby-horses are mentioned as early as the Han time, as is well attested by the bamboo horses on which the boys of Ping chou went out to receive the virtuous Kuo Chi (38 B.C.–A.D. 47), in token of respect and gratitude for his wise administration, on his return to his old magistracy (see GILES, Dictionary, p. 269 b, and Biographical Dictionary, p. 405; STEWART-LOCKHART, A Manual of Chinese Quotations, p. 73; C. PETILLON, Allusions littéraires, p. 288). See, further, STEWART CULIN, Korean Games (Philadelphia, 1895), p. 32; E. CHAVANNES, Documents sur les Tou-kiue (Turcs) occidentaux (St. Pét., 1903), p. 117.

TA-YÜAN in 1176, and published in 1779. The different character of the two birds, — particularly the formation of the tail, which varies from the previous ones, — and the ornamental treatment of the wheel-spokes, are striking at first glance. This wheel appears almost identical with, and is probably derived from, a wheel-like object of jade pictured in the same work (Book 47, p. 7), and here given in Fig. 22. The text says that this piece is to adorn the upper part of the state carriage (*yü lu*), and an implement of the time of the Three Generations (*san tai,* i.e., the Hsia, Shang, and Chou dynasties). That wheels of this type were employed for ceremonial carriages in times of antiquity, will be seen from Fig. 23, which is meant to illustrate the *ch'ung ti ch'ê* ("cart with pairs of pheasants") mentioned in the "Chou li."[1] As regards the explanation of

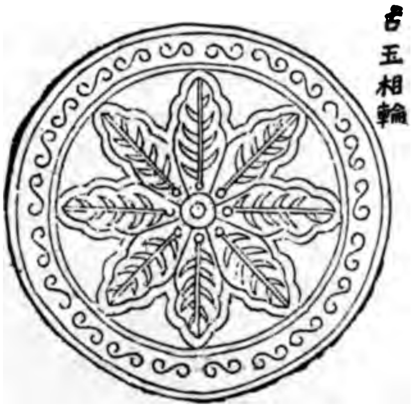

FIG. 22.

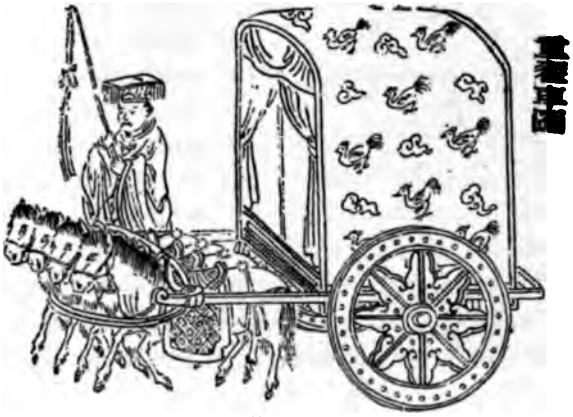

FIG. 23.

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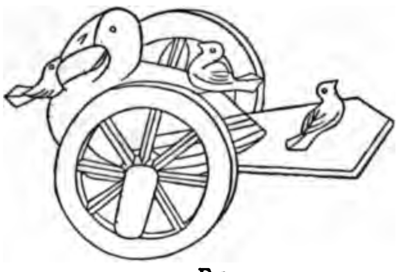
[1] T'u shu chi ch'êng Vol. 1114, k'ao kung tien Book 174, ch'ê yü pu hui k'ao, IX, p. 9, whence also the illustration is derived. COUVREUR (Dictionnaire clas-

the bird-chariot in the "Ku yü t'u p'u," the quotation given in the "Po ku t'u" is repeated, and it is further remarked that "this bird-chariot was an object in the palace of the Six Dynasties." Whether this may imply that the piece there figured comes down from this period, according to the author's view, must remain an open question; at least, he makes no other attempt to fix a date for it.

Finally, Fig. 24 is a bronze dove-chariot of the T'ang dynasty, figured after the "Hsi ch'ing ku chien" (Book 38, p. 27).[1] The accompanying note states that the "Po ku t'u" also contains this implement, with the quotation of Tu SHIH, which is then reproduced. It concludes with a new sentence not to be found in the other books, saying that this object was not made in the earliest days of antiquity, which seems plainly to hint at the fact that it first sprang up during the Han period. We thus have now an opportunity of viewing specimens of this type from three ages, — the Han, the Leu ch'ao, and the T'ang. The T'ang piece in Fig. 24 is the simplest of all, void of all decorative elements. It is distinguished from all others by having three young birds,—one on the breast, another on the back, of the old bird, as in the Leu ch'ao chariot, and a third on the tail, looking in the opposite direction. The form of the tail coincides with that of the Leu ch'ao object.



唐鳩車

FIG. 24.

3. A type widely deviating from the previous ones is found in the eleventh book of the "Hsi ch'ing ku chien." First of all, we meet there, on pp. 27, 28, two vases called *chiu ts'un* ("dove-vases"), each resting on the back of a plastic bird

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sique de la langue chinoise, p. 732) translates the term *ch'ung ti ch'ê* by "voiture aux plumes de faisan disposées par paires." The above figure would rather suggest representations of pheasants embroidered on the cart-awnings.

[1] From the quarto edition executed in Japan in 1888, which is an exact facsimile of the original, published at Peking in 1751.

figure, and both attributed to the Han period. The second of the two is here reproduced in Fig. 25.[1] No descriptive text is added, except the measurements and weights of the pieces. The purely ornamental and conventional style will be readily observed; and that this bird is by no means a dove, but that the latter designation is transferred to it merely through seeming analogy, — badly chosen, indeed, — is quite obvious at the outset. This feature is still more striking in the former of the two bird-vases, in which the feet of the bird are set with enormous toes provided with long sharp-pointed claws, so that evidently a bird of prey is there intended. Our next illustration (Fig. 26) follows the two vases in the same book of the "Hsi ch'ing ku chien" (p. 29), and is superscribed as a "dove-chariot vase of the Han time;" and it will be seen that this

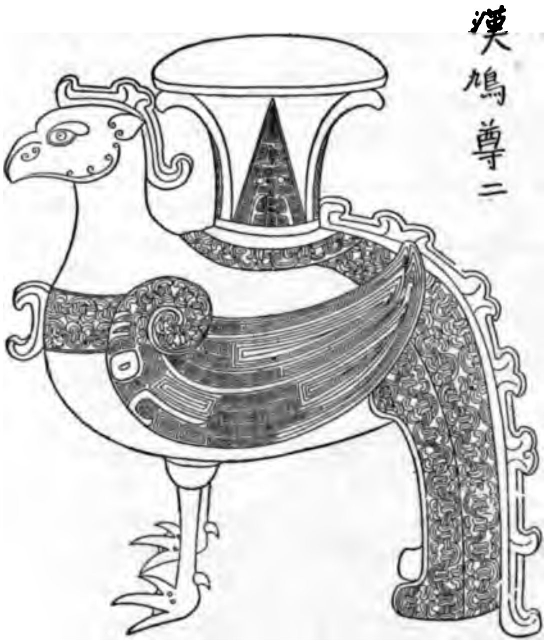

FIG. 25.

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[1] Compare the similar piece in J. LESSING, Chinesische Bronzegefässe, Vorbilder-Hefte aus dem Kunstgewerbe Museum, No. 29, Berlin, 1902, Plate II, Fig. *a*.

wheeled vessel represents the same type of bird as the preceding. It is, besides, the same type as that shown on Plate XXXIII. I can but presume that it is, in fact, a secondary derivation from the former; the feet of the bird being replaced by the two eight-spoked wheels, and a small wheel in the shape of a disk being added to the extreme end of the tail. A clew to the understanding and presumable development of this object is afforded by a brief explanation in the accompanying text of the "Hsi ch'ing ku chien," in which is this statement: "Compared with the two foregoing vessels [alluded to above], this one is a *plaything,* and that is just the point in which it differs from those sacrificial vessels." If this interpretation is correct, we should have to look upon this object as an adaptation to the sacrificial vase borne by the bird, caused or influenced by the previously described real dove-chariots, which I should like to style genuine or original ones, to distinguish them from the present pseudo-type. Whereas, as we shall see hereafter, the genuine Chinese bird-chariot seems to be derived from a foreign idea, there can be no doubt that the bird-vases, like that illustrated in Fig. 26, are a purely Chinese invention, since there are many analogies to this type which were in existence as early as the Chou dynasty (1122–255 B.C.), when we find the same type of sacrificial vessel standing on the back of elephants and other animals. In the Han period, such vases were placed on birds

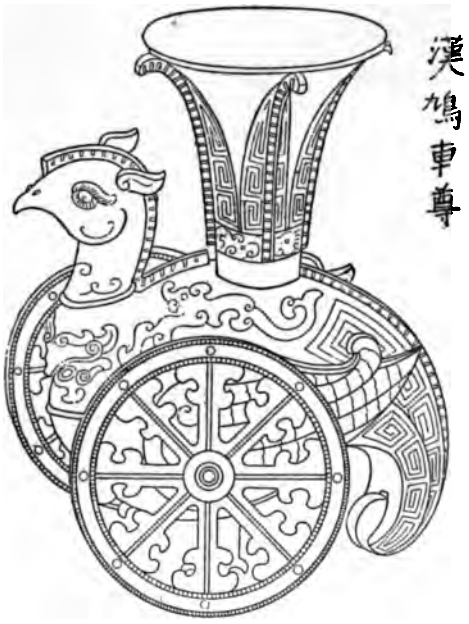


FIG. 26.

called larks (*t'ien chi*) and on so-called auspicious or wonderful animals (*jui shou*); and in the T'ang period, on dragons and phœnixes combined, and on stags. I think we may say, therefore, that the bird-chariot in Fig. 26 is a distinct type, differing from the others enumerated above, and that it is secondarily derived from a previously existing bird-vase by the addition of wheels, the analogon to which was found in the then established dove-chariots, with the same object in view as the latter implied; i.e., to serve as a toy. This deduction is very important, since it implicitly contains the inference that this wheeled sacrificial vase never was and never could be a religious or ceremonial object, as Dr. Bushell concluded (see end of § 1, p. 412), but was never anything more or less than a simple plaything. The occurrence of the vase had no significance, and was merely incidental in this toy, a mere grafting of a given favorite form, serving the purpose of creating a new variation of this then existing object of play, — a wholly subsequent and secondary development.

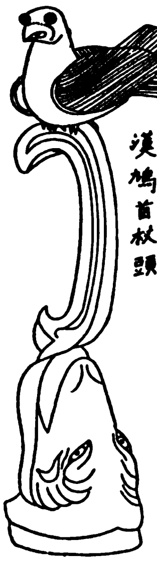
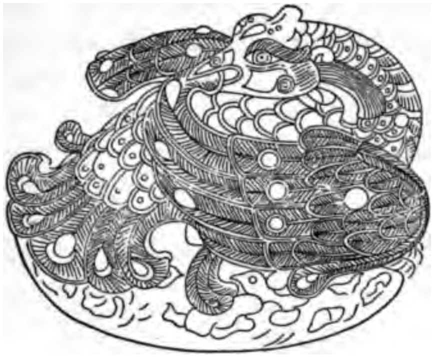


FIG. 27.

4. The utilization of the dove and pigeon in artistic representations was not frequent in ancient China. Besides the dove-chariots, there are only two kinds of objects known from the Han time, in which a dove was figured. The one is a staff, usually of jade, adorned with the figure of this bird, and bestowed upon men eighty or ninety years old. The details regarding this custom will be found in my forthcoming paper, "The Pottery of the Han Dynasty." The engraving Fig. 27 is from the "Hsi ch'ing ku chien" (Book 38, p. 19). It represents the handle of such a staff, formed by an inverted animal (sheep?)-head (presumably to serve as a socket) surmounted by a dove, the whole apparently made of bronze. The other kind of object is a "book-weight" (*shu chên*) of bronze in-

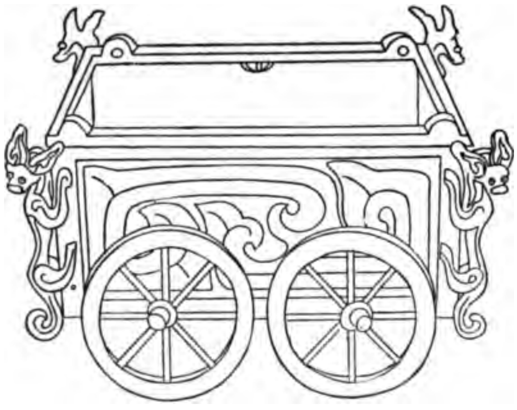
laid with gold and silver (Fig. 28), explained as having the shape of a dove (*chiu chên*), and as originating from the Han time (Hsi ch'ing ku chien, Book 38, p. 39). No description of it is furnished.



漢鳩鎮

FIG. 28.

5. The type of the dove-chariot may raise the question whether there are other ancient vessels extant in the shape of chariots. I have found only one, reproduced in Fig. 29. It is derived from the " Hsi ch'ing ku chien " (Book 38, p. 57), and is entitled *T'ang fang ch'ê hsün lu* (" a censer [lit., 'stove for fragrant herbs'] in the shape of a quadrangular cart of the T'ang period "). Unfortunately, no further discussion of this interesting specimen is added. The four monsters with spirally curved tails clinging to the four corners of the four-wheeled vehicle strongly remind one of the type of a hydra (*ch'ih*).



唐方車薰鑪

FIG. 29.

6. Aside from the illustrations in the above-mentioned archæological works, there is no documentary evidence relating to these dove-chariots to be met with in Chinese literature. Neither K'ANG HSI's Dictionary nor the "P'ei wên yün fu" mention this term, and, so far as I know, there is no contemporary record extant in the books of the Han.[1] This silence is very curious and suspicious; and the few unsatisfactory notes which the antiquarians append to this article do not help much in verifying its origin, being of such a nature as hardly to allow of stamping it as a genuine Chinese invention. They admit, on the contrary, that it was unknown in the days of greatest antiquity, and that it did not make its appearance before the era of the Han dynasty, — a period in Chinese art in which large waves of foreign elements burst over the native ideas. It was the time when, as I have tried to show elsewhere, Siberian or Old-Turkish art exercised a far-reaching influence on that of China, and new motives imported from abroad held full sway over the then Chinese artists. Would it not, then, be possible to associate the object under consideration with those other foreign invasions? Would it not be justifiable, under these conditions, to look for analogous phenomena in other spheres of art, which might have been the prototypes of the Chinese idea, and thus afford the foundation for a better explanation of it? We have seen that Morse pointed out the occurrence of a wooden wheeled bird in Egypt, and he is inclined to consider that country as the one where this curious object was first conceived of. But as in Eastern Asia, so in the western part of the Old World, we discover a much wider range and a far more extended geographical distribution of these things than is admitted by Morse. Indeed, almost throughout Europe and Anterior Asia, bird-chariots of bronze occur in large numbers which date from the end of the bronze age. As they have often been described and figured, I will refer the reader to the more important literature regarding these finds: R. VIRCHOW, "Nordische Bronze-Wagen, Bronze-

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[1] This is particularly confirmed by the great cyclopædias, like Yen chien lei han, T'u shu chi ch'êng, Ko chih ching yüan, which, in mentioning the dove-chariot, are content merely with repeating the one quotation from the Po ku t'u.

Stiere und Bronze-Vögel," in Zeitschrift für Ethnologie, Vol. v, 1873, Verhandlungen, pp. (198)–(207); M. Hörnes, "Urgeschichte der bildenden Kunst in Europa" (Wien, 1898), pp. 499 et seq., and "Die Urgeschichte des Menschen" (Wien, 1892), pp. 411, 540–542; E. Chantre, "Recherches anthropologiques dans le Caucase," Vol. ii (Text), 1886, pp. 203–205, with 12 figures of such chariots; Ingvald Undset, "Antike Wagen-Gebilde" (Zeitschrift für Ethnologie, Vol. xxii, 1890, pp. 49–75, particularly pp. 49, 56); Joseph Hampel, "Altertümer der Bronzezeit in Ungarn," 2d ed. (Budapest, 1890), Plate lviii; Salomon Reinach, "La sculpture en Europe avant les influences gréco-romaines" (L'Anthropologie, Vol. iii, 1896, p. 171); O. Schrader, "Reallexikon der indogermanischen Altertumskunde" (Strassburg, 1901), p. 930. Virchow remarks in his paper that groups of ducks figure on several chariots of bronze, and illustrates one found in Frankfurt-on-the-Oder, which consists of three wheels connected by an axle; between the wheels there are four birds, two of which stand on the shaft going out from the axle. This sketch is here repeated in Fig. 30, after Virchow in the above-quoted paper. Undset (l. c.) discusses, among others, a bronze chariot from a tomb near Corneto in Etruria, supposed to belong to the eighth century B.C. On four four-spoked wheels connected by two axles rests an animal whose neck, body, and tail betray a bird, that, however, possesses four feet and a head (perhaps that of an ox?) with horns. In the middle of its back there is a quadrangular opening, and the hollow body thus forms a small vessel. The opening is closed by a lid formed like the back of a similar animal with the same bird's tail and neck and horned animal-head. In the bird-vessels from Italy, he interprets the bird as a duck, and presumes that these bird-chariots were a sort of sacred objects which might have some relation to Oriental models. Accord-

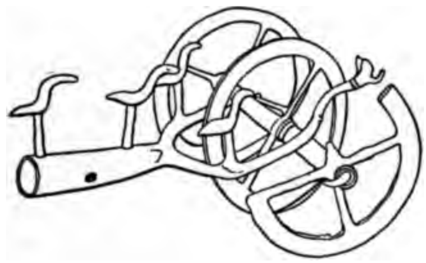

Fig. 30.

ing to him, in northern Europe also, kettle-chariots have been found, representing bronze vases resting on two bent axles.[1] These chariots of European finds are usually conceived of as votive chariots, and assigned to some religious cult. Whether this was so in all cases or not, it is not the place here to discuss; but considering the fact that, according to a well-authenticated tradition, they appear in China from the first as toys, and were there never anything else, I should venture to suggest to our archæologists that such a possibility might be admitted also for a part of the European objects in question. Or might mere ignorance of their true signification on the part of the Chinese have led them to intimate that they were toys?[2] Since European chariots are much older than Chinese ones, since they are found there over a much wider geographical area and in greater numbers, there can be no doubt that this idea must have spread from the west to the east; indeed, if such was the case, it can have found its way to China only by way of Siberia, in the first place through the medium of Scythian tribes, of whom it is now well established that they acted as the mediators also of other motives of art in their transmission from Europe to Siberia, and thence farther to China. Unfortunately, among the antiquities of Siberia, no such bird-chariots have hitherto been discovered. Should chance ever bring one to light, the evidence of the migration of the Chinese dove-chariot, and of the idea underlying it, from Europe to China, would be settled beyond any doubt. After all, the Yakut specimen figured by Morse might be looked upon, if not as a survival of former ages, still as a promising factor pointing in the direction of other possible future finds on Siberian soil.

7. Modern toys set on wheels are not rare in Eastern Asia. Professor Conrady informs me that he once saw in Siam a toy made of straw, representing a bird running on wheels. In a collection of toys made by me in Peking, there is a butterfly set on an axle to which two wheels are attached, the whole made

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[1] See also R. VIRCHOW, l. c., p. 199.

[2] R. VIRCHOW (Ibid.) mentions a bronze chariot with bull and bird heads which he acquired near Burg-on-the-Spree in 1865, when it was about to be worked into a child's toy.

of tin, and colored. Small models of carts are much in vogue as toys in the capital, and the cart-horse usually moves on four small solid wheels.[1] Although an historical connection between these recent toys and the ancient bird toy-carts cannot be directly demonstrated, there is much reason, after all, for the assumption of such a development.

8. My previous remarks are not by any means exhaustive as regards the archæological importance of these ancient Chinese bird-chariots of bronze: for, owing to their representation of wheels, they offer another source of study, from the view-point of ancient means of transportation. It is well known that carts are pictured in great numbers on the stone bas-reliefs of the Han time with several well-distinguished types, and a few others in relief are on metal mirrors of the same period. An immense amount of material is further stored up in Chinese literature regarding vehicles and modes of transportation in ancient and modern times; and the problem as to the origin, history, and distribution of wheeled vehicles over Asia, is one of no mean importance for the elucidation of oldest history.

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[1] See, for instance, the figure in I. T. HEADLAND, The Chinese Boy and Girl (New York, 1901), p. 111.

THE INAU CULT OF THE AINU.

BY LEO STERNBERG,

ST. PETERSBURG.

THE beliefs and religious rites of the Ainu are possibly the most interesting feature in their culture. One of the oddest peculiarities in their cult, the cult of *inau,* I shall present in this paper. My aim will be, not so much to describe completely the cult as to elucidate its genesis, — a question which I have had ample occasion to study during my personal observations of the Ainu, as well as later on in working up the Ainu collection of the Museum of the Imperial Academy of Sciences at St. Petersburg. But first on the Ainu religion in general.

1. In their fundamental religious conceptions, the Ainu stand quite close to the primitive so-called "shamanistic" religions of the native tribes of Siberia, particularly to that of the Gilyak, their immediate neighbors on Saghalin. All objects and phenomena appear to them, not only as living, animated beings, but even as endowed with complete individuality. The *Ainu* ("the man"), a being one and the same in his nature, is concealed under all multiplicity of forms. A tree, a mountain, and a cliff are living, rational beings, listening, understanding, moving, acting; a small animal, as a frog, may be endowed with the highest intelligence, — an intelligence greater even than that of man; a man may be born from a tree (such, for example, is the legend of the origin of the Ainu themselves), and contract marriage even with beings like a flounder; a felled tree may be revivified, if the shavings into which a small stick has been cut be put into the stump; and even objects made by man, such as a kettle, spear, knife, boat, etc., possess a soul, and may follow man to the other world, etc.

With such a belief, it is but natural that the Ainu should treat as *divine* every object of external nature, every phenomenon which in any way appeals to his imagination, and exhibits properties in which he himself is lacking, or those superior to his own. All of these are divine objects, and are called *kamui* in the Ainu language. Even a man may be a kamui, provided he distinguish himself among his kinsmen by something, — bravery, eloquence, success, etc. But not all kamui are objects of worship.

The Ainu pantheon is almost exclusively *zoölogical.* There is not a beast, especially of the large ones, — like the bear, the whale, the orc, the walrus, the sea-lion, the seal, the sable, the otter, etc., — which he does not honor with the name "kamui." Beast and kamui are synonymous. In contrast to the Gilyak, Orok, and other natives of the Amur region, who discriminate between a mere beast and a god-beast, — that is, a god-man who has assumed the shape of this or that beast, — the Ainu, in addition, see a kamui in each beast as such. But, like the Gilyak, they pay a properly conscious worship (in the form of offerings and prayers), not to beast in general, but to the "masters"[1] of each species or element, who, in their turn, too, are called *kamui* (in the sense of "master"), with the appellation of this or that sphere of nature added; for example, *nuburi-kamui* ("master of the mountain"), *atui-kamui* ("master of the sea"), *toy-kamui* ("master of the subterranean world"), *chup-kamui* ("master of the sun"), etc.

The principal gods on whom the welfare of the Ainu depends are the "masters" of the mountain and sea, who supply them with the main objects of subsistence, — beasts, fish, sea-animals. These are purely zoölogical gods. The one is the "master" of the bear. On the one hand, he is a man; on the other, a real bear, only of unusually large size. All other bears are his fellow-tribesmen.

The "master" of the sea is the orc, *Orca gladiator.* The cult of this beast, as well as the cult of the bear, I have described in detail in my article on the religion of the Gilyak.[2]

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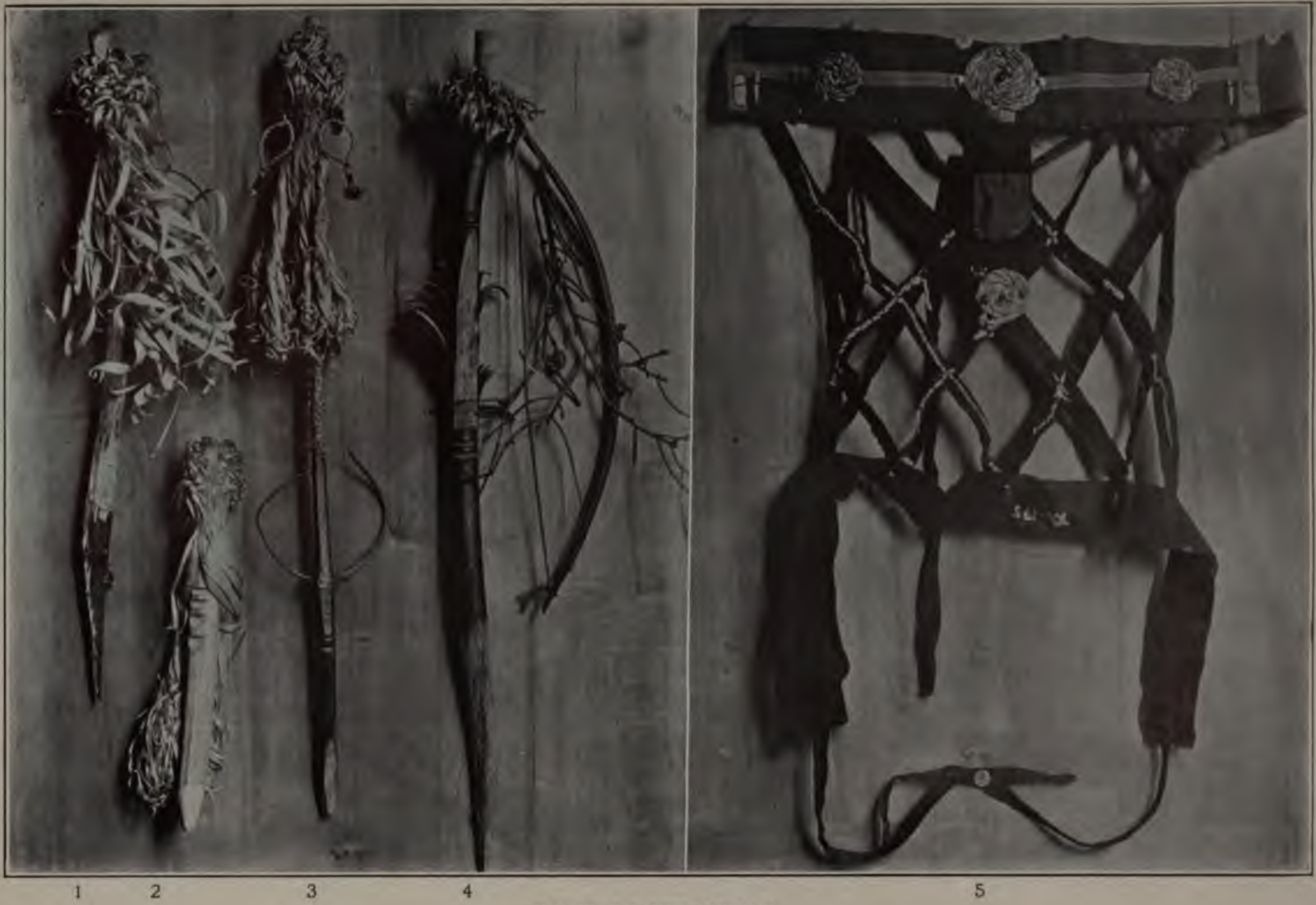
[1] Here and throughout this article the words "master" and "mistress" are used in a special sense. Both are a translation of the Russian word *khozyain* (literally, "proprietor of a house"), then a well-to-do man, an esteemed proprietor in the village or town. Just as in communities there are well-to-do, respected citizens and poor fellows, so, among the gods and animals, there are kamui ("masters"), those better off, respected, powerful, those of authority.

[2] See Ethnographical Review (Russian), February, 1904.



INAU OF THE AINU, SAGHALIN.

1, Inau without notches, for the ancestors; 2, Inau with four notches, for the master of the mountains and forests; 3, Inau with three notches and ear-rings, for the master of the sun and the mistress of the hearth; 4, Curative inau with three notches, attached to a bow amulet; 5, Curative apron with plaited shavings appliquéed in the shape of magic coils and strings.

An "imported" (Japanese) deity, who now plays well-nigh the most important part, — more in word, however, than in fact, — seems to be the "master" of the sun (*chup-kamui*), who, according to the present popular views, is the greatest deity, lording it over all the other gods. In reality this deity has little connection with every-day life. He is naturally closely associated with the "master" of the gens-fire, who plays a really great part.

Besides the principal kamui, there is a series of other, secondary ones. These are the kamui of the gens, such as the "master" of the hut — *yurta* — (*tisse-kamui*), the grandmother or the "mistress" of the fire, and other hero-ancestors; finally, numberless "masters" of individual rivulets, groves, valleys, mountains, cliffs, etc. All of these are kind, beneficent kamui, on whom man's whole welfare depends. They are his nourishers and guardians, defenders from all evils and disasters.

But there are also beings whose special business it is constantly to harm the Ainu, and to bring upon him disease and even death. For these beings, whom commonly he does not even honor with the appellation "kamui," he has no cult whatever. For them he has no offerings, no prayers, nor even simple piety. With them the Ainu finds it possible only to struggle. The secrets of this, so to speak, art of war, are known to the shamans (*takusa ainu*), who play among them a rôle similar to that among all primitive peoples, though they do not, however, enjoy any special esteem or influence. But the benevolent deities they hold in veneration. To them long and eloquent prayers are offered; with them the Ainu share their best viands and beverages; and finally in their honor are set up, wherever possible, those countless objects, varied in form and size, which are known among them under the name "inau."

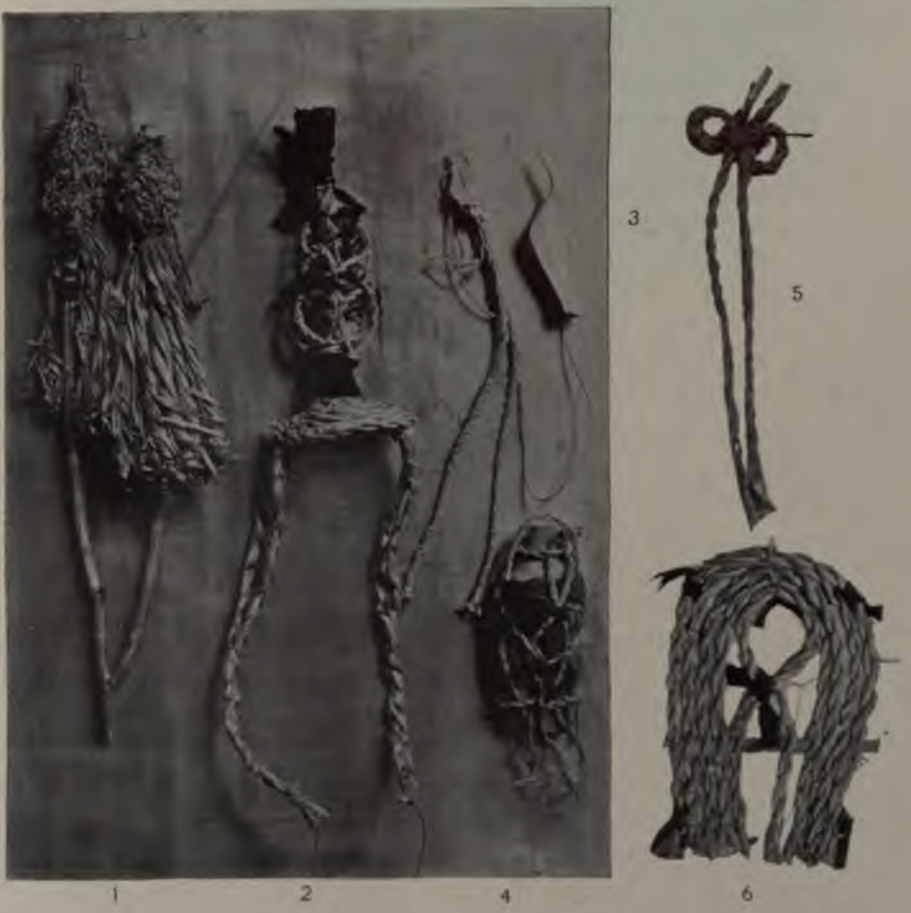
2. There are inau of the most varied shapes and destinations. The most common type is a small stick, skilfully cut at various points into shavings in the form of curls (see Plate XXXIV, Figs. 1–4). The usual material is willow-wood; less frequently alder or mountain-ash may be used, according to the end in view. Generally the stick is first stripped of its bark, and then roughly planed with a knife; but sometimes the bark

is left on, with the exception of the middle portion in front (Fig. 1). The mechanical devices of the work are most primitive. The tool is an ordinary short knife with blade somewhat curved, which the worker draws quickly towards himself along the piece of wood, holding one end of it with his hand, and pressing the other to his chest.

A slight examination of an *inau-stick* will show that it exhibits a primitive representation of a *human figure.* Its upper part is always made in the shape of a little head. The middle part commonly contains *notches,* always arranged in a certain order and definite number, according to the shape and designation of the inau: thus, in Plate XXXIV, Figs. 3, 4, there are three notches, one a little above the middle planed part, the other two always below it; in Fig. 2 there are four notches in succession; on others there are seven, and even more. On some sticks there are left on both sides, symmetrically situated, knots in the shape of arms, which are most frequently curved into a circle, — the fire-inau, the sun-inau (Fig. 3). Indeed, the Ainu themselves distinguish in the inau parts of a body, — the head, crown, neck, hair, brows, eyes, mouth, lips (or mouth alone), navel, and sexual organs (the last six, all in the form of notches), and, finally, hands and feet (the lower part).

On some, the so-called *nin'kari inau* (Plate XXXIV, Fig. 3), are found even ear-rings (*nin'kari*) of shavings. This denotes a female form. On Plate XXXV, Fig. 1, may be seen two figures on one knot, — one, a female, with ear-rings; the other, a male, without them.

But the inau-stick is only one form of inau. All external inau — the so-called *soyta-inau,* that is, placed outside of the house — are usually in the form of tall poles, or even whole trees, sometimes stripped of their bark, and again with the bark on, but with notches, and always cut to shavings, or bound with shavings. These often present very complicated figures. For example, the *chup-kamui inau,* the inau to the "master" of the sun, represents a complete little fir-tree in its bark, with arms curved into a circle (symbol of the sun) in the middle, with the three ordinary notches (mouth, navel, and sexual organs) in the middle section, two pairs of oblique incisions on both



INAU OF THE AINU, SAGHALIN.

1, Inau on the top of the tree to which the bear is bound at the bear festival; 2, Inau for the bear's head; 3, Curative inau attached to the wooden figure of a cuckoo; 4, Figure of a bear bound with strings; 5, Curative inau in the form of a necklace; 6, Inau in the form of an ear-protector for the bear.

sides of the arms, seven spiral cuts in the bark, along the stem, and a superposed head-piece in shavings with seven braided tresses on the crown. Compare Plate XXXIV, Fig. 3, which represents a simplified type of this inau for the fireside.

Inau-sticks are often mere miniatures of these large inau-trees, which cannot be used everywhere with equal ease, on account of their size and cumbersomeness.

Further, there are to be distinguished individual and group inau. The latter are called *nusa* (a Japanese term), or *inau-chipa;* and, according to the purpose for which they are designed, they consist of one or another number of figures, — now of husband and wife, now of a whole family, and again of master and assistants. A whole forest of such group inau is arranged in a semicircle on the arena on the occasion of a bear festival.

The appellation "inau" is not confined to the figured sticks, — poles and trees cut into shavings in a certain manner, — but is applied as well to the very shavings (though, without the stem, they represent no figure), and even to articles made of shavings, provided they bear upon the cult. Thus, the shavings with which the Ainu are wont to tie their heads at solemn banquets bear the same name, which is also given to ornaments woven of shavings put on the bear's head during the bear festival (Plate XXXV, Fig. 2), and to a whole line of all possible kinds of medicinal frontlets and fillets made of shavings (Figs. 4 and 5). Some of these last are made of common fabrics throughout, but are trimmed with cords twisted of finely cut shavings; and therefore they, too, are characterized as "inau." It is sufficiently manifest from this that *shavings are the most essential attribute of inau,* and it is particularly necessary that this should be borne in mind in order to clearly understand the meaning of this peculiar form of cult.

The inau play an enormous part in the Ainu's life. All his surroundings, all his environments, his whole field of activity, is filled with inau. Enter his house. On the fireplace is set up an *unti-inau,* inau to the "mistress" of the fire (Plate XXXIV, Fig. 3); in the corner there is a fringed *tisse-kamui inau,* inau to the "master" of the house, the ancestor; to the fender of the fireplace a special *inumpa-inau* is consecrated; at the door is an *apa syat un inau;* over the bedstead are suspended here and there medicinal inau. Outside of the house, on the eastern side, rise up whole group inau made of tall poles and trees, in front of which the owner of the house daily recites his lengthy prayers. And further, wherever one turns, — on mountain, on seashore, on river-bank, in forest, on roads, on mountain-summits, in cemeteries, — everywhere, large inau, of most varied forms — to the "master" of the mountain (Plate XXXIV, Fig. 2), sun (Fig. 3), sea, river, to an ancestor, whale, otter, bear, seal, etc. — are to be seen.

All these are *permanent inau,* which are regularly set up at a certain time and at certain places. Periodically, once a year, and sometimes even oftener, they are renewed, and the old ones are carefully stored up in special sheds.

But even more numerous are the inau made for this or that particular occasion. For example, after every successful hunt, inau are made to this or that divinity, and, in addition, the heads of the killed beasts, or their wooden effigies (Plate XXXV, Fig. 4), are adorned with inau. If one falls ill or recovers, if he goes on a journey or returns, etc., there is a new inau. A systematic catalogue of inau would fill a volume. It may be said without exaggeration that a considerable portion of the Ainu's life is spent in producing inau, and it is only at the end of a long life that complete mastery of this mysterious science is attained.

This odd cult has spread from the Ainu to the neighboring people of the Amur region, — the Gilyak, the Orok, the Gold, and the Orochi; but, so far as we are aware, it has been found nowhere else. Judging from KRASHENINNIKOF'S description,[1] an analogous phenomenon exists among the Kamchadal, but with the substitution of fibres of sedge-grass for shavings.

3. Two questions are to be cleared up, — What is the purpose of the inau? Whence its peculiar shape? Some inquirers have answered both questions; others, only the first.

BATCHELOR, the well-known missionary, who has lived for several years among the Ainu, on the Island of Yezo, now sees in them "mere offerings," and again "genuine fetiches."[1] Mrs. BIRD, who has travelled among the Ainu, considers the inau to be domestic deities.

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[1] A Description of the Land Kamchatka, second edition, pp. 331, 332.

An entirely peculiar opinion is held by the Russian observer, Dr. M. M. DOBROTVORSKI, who lived among the Ainu on Saghalin in the seventies, and wrote a dictionary of the Ainu language. He maintains that the inau are but effigies, *substitutes for human sacrifices,* which, according to the Ainu themselves, were once performed, and are even now in use among some of their tribesmen.[2]

This hypothesis contradicts the facts. In the first place, it must be pointed out that on a whole line of inau — as, for example, on Plate XXXIV, Fig. 1 — there are no notches at all. Further, a whole line of inau consists of shavings alone, without a suggestion of human figures. On many which have notches, as on Fig. 2, these notches, as stated by the Ainu, denote parts of the face, — the eyebrows, eyes, mouth, and nose. But even in the case of such figures as those seen on Plate XXXIV, Figs. 3 and 4, where the middle portion stripped of bark might be interpreted as the abdomen, the notches happen to be just above and below that part, and cannot, at any rate, represent the cutting-open of the belly. In reality, on these figures, the upper notch denotes the mouth; the two lower, the navel and sexual organs. On some inau the middle, planed part is even pointed out by the Ainu as the face. Thus Dobrotvorski's hypothesis falls *per se.*

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[1] [This was formerly the opinion of Batchelor, which, however, he has given up and partly revised in his new book The Ainu and Their Folklore (London, 1901, pp. 96 et seq., pp. 110 et seq.); compare also the critical remarks on the subject by Cl. E. MAITRE (Bulletin de l'Ecole française d'Extrême-Orient, Vol. II, p. 216; Vol. III, p. 126). Batchelor is now also of the same opinion as the author of this paper, that there are inau acting as "mediators or messengers, whose spirits pass between men and the various deities." The fact that these two authors were independently led to this result seems to me a very remarkable coincidence; but there can be no doubt that Dr. Sternberg went far beyond Batchelor in the elucidation of the question. — EDITOR.]

[2] Aino-Russian Dictionary, Supplement, p. 65; also Introduction, p. 42. Kasan, 1875.

More attention is due to the considerations of W. G. ASTON,[1] who derives the inau from the Japanese Shinto cult, and connects them with the so-called *gohei,* sacrificial sticks hung around with strips of colored paper. In earliest times, argues this investigator, fabrics, yarn, and fibres of textile plants, were very frequently to be found among the common offerings of the Shinto cult. Later on, these real offerings, bearing the name "nusa," assumed a purely fictitious form, having been supplanted by sticks with strips of fabrics or fibres of plants attached to them; and later still, when cotton came into general use, they were entirely superseded by strips of paper. These very sticks, hung around with strips of paper, and called "gohei," are, in the opinion of Aston, the prototypes of the Ainu inau. In their subsequent evolution, these gohei, and with them the inau, have become, from mere objects of offering, independent objects of worship, having been transformed into miracle-working magic beings, and even receptacles of spirit-deities.

However tempting the acceptance of this hypothesis may seem, — the more so because the gohei indeed somewhat resemble the inau in shape; and, furthermore, the most ancient forms of gohei bear the name "nusa,"[2] identical with the Ainu name for a group of inau,[3] — yet the reasons adduced by the author in support of his hypothesis are not conclusive. Indeed, if the inau are but the Japanese nusa and gohei, then the Ainu, like the Japanese, would have passed from fabrics and fibres to *paper;* or, if paper strips were for some reason or other beyond their means, they would have retained the old form of nusa, — that is, fabrics and spinning-yarns, — which would be the more natural, as the Ainu are familiar with the weaver's art; and textile material, in the form of nettle and elm-bast, was always ready at hand.

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[1] The Japanese Gohei and the Ainu Inao (Journal of the Anthropological Institute of Great Britain and Ireland, 1901, Vol. XXXI).

[2] In reality, the Ainu have their own synonymes for "nüsa," *inau-chipa;* and the Japanese, on the other hand, call the Ainu nusa by the name *inau no rui.* Compare this word in BATCHELOR's Ainu-English-Japanese Dictionary.

[3] See p. 429.

Of greater interest are the considerations of the same author, quoting two Japanese writers of the beginning and end of the eighteenth century, that, among the ceremonial objects of the Shinto cult, there had been the so-called *kedzuri-kake* (half-shaved little sticks). An extant representation of such a stick resembles the inau very closely indeed; but this fact argues rather against the gohei-inau hypothesis, and for the following reasons. As stated by the author himself, the said kedzuri-kake were lighted at the sacred fire of the temple, and carried home by the Shintoists to kindle the New-Year's fire on the hearth. This ceremonial, no doubt, must be very old; and for such a purpose, the kindling of fire, the ancient nusa of fabrics and yarn would be utterly good for nothing. If such is the case, the little half-shaved sticks of the Shinto cult must be of *primary* origin, and then they have nothing in common with the gohei; and there is more reason to credit their invention to the Ainu than to the Japanese, as among the former the cult of "shaved" sticks has received the widest development, while in the case of Shintoism we know of but one or two isolated cases.

I have now only to give my personal considerations and observations on the meaning of inau and their origin.

4. First of all, it was important for me to ascertain clearly how the Ainu themselves look upon their inau. This I endeavored to do in all possible ways during my travels among the Saghalin Ainu; and, to be just, they formulated their ideas on the subject with a clearness and definiteness that left nothing to be desired. Among the Saghalin Ainu, in the early nineties, the greatest authority was vested in a certain man called Nisendus, the venerable aged chief of the village Mauko. He was, forsooth, a very venerable and sensible old man, a veritable patriarch, of whom his fellow tribesmen used to say that he was "just as good" as a kamui (god). I wished to verify my former inquiries and observations, and, while at his village, I visited him. He was just installing a new ***unti-kamui inau*** on his fireplace. "Explain to me," said I, "why you make these inau. What are they?"—"This," said the old man, "is an ***ikoy-ìtáku ainu*** ('mediator, envoy, orator'). The

Ainu tells this deity[1] his wants, and he will convey them to the kamui. One goes to the 'master' of the fire; another, to that of the mountain; another still, to the 'master' of the sea; and all of them help the Ainu." — "And how can a little stick talk?" — "It is not the stick, but its *soul,* that goes and re-tells all to the kamui. Why, even a tree — that, too, has a soul."

Nisendus but formulated that which even previously I had had occasion to observe and hear everywhere among the Ainu, and earlier still among the Gilyak. Thus *inau is not a deity, nor an offering, but a living mediator between gods and man,* — a "wooden man," who is endowed with the faculty of conveying rapidly, eloquently, and efficiently the wants of man to the gods.

The epithet "kamui," which the Ainu bestow so lavishly upon any animal whatever, upon many of their fellow-tribesmen, even upon every material object seeming extraordinary or mysterious, is never applied to inau. They are treated, it is true, as tabooed objects, but by no means as deities. The Ainu pray before them. Every day, before the nusa behind the eastern window, most fervently do the elders of the house lift up their voices in lengthy prayers; but these prayers are addressed to the respective deities, and not to the inau. Before the inau, libations of the sacrificial *sake* are made; on them, various trifles (shreds of cloth, sabre-hilts, ear-rings, etc.) are hung; but all of these are offerings which the inau, or rather their souls, must deliver to the respective gods.

For the expression "offering" there is a special term, *inomi,* denoting all kinds of food, beverages, tobacco, cloth-stuffs, valuables, presented to the gods, but by no means to the inau. And naturally, too, the inau as mediators are needed by men, but not by deities.

Notwithstanding their modest rôle of mediators, the inau, in the eyes of the Ainu, are of immense importance; for without them, not a prayer would be heard, not a want would be satisfied, and life itself would be impossible. *Inau sak guru,* "a man without an inau," is the last man (Batchelor).

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[1] Literally, "interpreting-man, envoy, orator," a term specially applied to individuals distinguished through eloquence, who act as envoy and mediators in affairs of vengeance, war, and peace.

To realize fully the significance of the inau in the eyes of the Ainu, one must see what importance is attached to them in moments of grave danger. Many a time have I sailed with the Ainu in their frail canoes on the stormy Okhotsk Sea, and more than once have the raging billows threatened to engulf us; but never, even in the most critical moments, did our companions lose their self-possession. Realizing the danger we were in, the Ainu helmsman would take out a small stick prepared beforehand, and would begin to cut it quickly into shavings. When the figure was ready, he would cast it into the waves with the instruction, "Go to the 'master' of the sea and tell him to take a good look. Will it be well if we and this Russian gentleman perish, and the kamui does not look on?"

It remains to clear up the rôle played by the *shavings* in the inau. Precisely why does the "being cut into shavings" appear as their indispensable attribute? The answer, I surmise, is, that the value of the shavings is associated with the ideas that are in the mind of the Ainu during the process of "shaving." Very frequently he has to shave pieces of wood, several times a day even, — whenever he has to make a fire in the open air, often in the midst of rain and wind, which are so common in his rough and inclement country. Believing as he does that the tree is animated, even manlike, — the sap of which he considers blood; the branches, arms; the rustle of its leaves, speech, — he cannot help being struck with the mysterious expressiveness of those long, fantastically winding, pointed tree-*tongues,* which fly so swiftly from under his curved knife, only to turn again with equal rapidity, as if alive, into grotesque curls.

And the Ainu, as we have seen, looks upon the matter just this way, calling his inau *"ikoytaku ainu"* ("orator-man"). Thus the Gilyak, too, calls it, *khlay-nivukh* (synonyme of the Ainu term, literally, "interpreting man"). The shavings on the inau are precisely the orator's tongues, and in these latter lies the whole sense of the inau. This is not merely hypothetical. It is confirmed by the formation of the word *inau* itself. It is composed of the common pleonastic particle *i,* which is very often omitted, — for instance, in the word *inomi* = *nomi* ("sacrifice"), — and the word *nau,* consisting of *ni* ("tree") and *ay* ("tongue"). Thus *inau* signifies literally "a tree's tongue."

Again, this peculiar idea of *tongues* of a tree-orator presents nothing exceptional in comparative ethnography. Ideas almost identical are to be found in most diverse parts of the earth and among most diverse peoples of those parts, on the subject, for example, of *fire* in connection with the noisy *many-tonguedness* of its flame.

To sum up, inau are "shaved" trees and pieces of wood, commonly in the shape of human figures, which act as men's intercessors before deities. Their power lies in their numerous *tongues* (shavings), which increase the suasive power of their eloquence to an extraordinary degree. Their present-day variety of form and destination is the result of a long evolution. In the beginning, a bunch of shavings issuing from a single short stem, after the manner of a stick shaved for kindling a fire, was probably all-sufficient.

In the course of time the Ainu began to pay more attention to the stem proper (body of the mediator), began to endow it with notches, a little head-piece, hands, arms, and to arrange the shavings (as a sort of supplement to the figures) in the form of hair, braids, vegetation on the body, and so forth. On the other hand, the shavings in themselves, apart from the stem, attained an independent development and most varied application.

At first mere "tongues" before the gods, the inau, owing to the importance of their rôle, the habit of looking upon them as a cult-object indispensable in all cases, have acquired to some degree an *independent* importance of sacredness and divinity. To them independent wonder-working power began to be attributed. Hence inau began to be looked upon, not only as intercessors before gods, but even as objects agreeable and useful to the gods themselves. Thus the "shaved" trees in front of the arena at the bear festival are destined partly to the Bear himself and partly to his mother, evidently as simple amulets for these divine beings. Gods, just as much as men, are in need of them. Thus the Orok, for example, the neighbors of the Ainu, when making a medicinal effigy of a tiger-man, fasten on its breast an exact miniature reproduction of it, which is to serve as an amulet for the deity itself.

On the other hand, inau become the customary amulets for men also. They began to be applied first in cases of sickness. The diseased parts of the body, particularly the head, came to be bound with shavings. The stem, in such cases, as preventing their application, was cast away. This mode of healing created a whole pharmacology of bandages, frontlets, belts, in which the shavings appear in the shape of the most diverse plaitings (cords, circlets, etc.) in conjunction with various other amulets, like glass beads, wooden images of various organs of the body, etc. (see Plate XXXIV, Fig. 5; Plate XXXV, Figs. 3 and 5). To strengthen their effect, the shaving-plaitings receive, moreover, the form of various magic figures, as circles (symbol of the sun), and similar magic symbols. Another step, and the medicinal bandages, with their artful plaitings of shavings, entered the every-day sphere of dress and ornaments.

It is instructive to trace this development in the ceremonial of attiring the bear at the festival. Primarily they adorned the slain bear with shavings alone as the necessary amulets for the slain animal, just as the Gilyak, in such cases, attach to the bear an image of a toad, their mightiest amulet. The heads of killed seals, even nowadays, before being cast into the sea, are tied over with mere shavings. But at present the modest shavings on the bear's head have turned into a whole complex of head-gear, frontlets, ear-caps, ear-rings, etc., daintily plaited of shavings (see Plate XXXV, Figs. 2, 6).

EIN BEITRAG ZUM KAPITEL ARBEIT UND RHYTHMUS.

VON DR. J. D. E. SCHMELTZ,

DIRECTOR DES ETHNOGRAPHISCHEN REICHSMUSEUMS, LEIDEN.

DAS hiesige Museum besitzt unter den Landbaugerätschaften aus Borneo sechs Säestöcke, die gebraucht werden, um Gruben in den Reisfeldern zu machen, welche für die Aufnahme der Saat bestimmt sind. Das obere Ende derselben ist bei vieren mit einem Klangkörper versehen, der sich bei zweien innerhalb eines auf den Stiel gesetzten Bambusendes oder innerhalb eines hohl geschnitzten Teiles befindet. Das Studium dieser Geräte gab uns Veranlassung, die bestehende Litteratur über derartige Geräte auch aus dem nahe liegenden *Celebes* heranzuziehen, und wir fanden dabei in derselben zwei Geräte, — das eine aus *Celebes*, das andere aus *Borneo*, — die den in unserer Sammlung vorhandenen, hier (Plate XXXVI, Fig. 1 und 2) abgebildeten, sehr nahe stehen.

Das eine wurde durch die bekannten Reisenden P. und F. SARASIN zu *Dumoga besar* in *Bolaäng Mongondou* erlangt und ist in deren kürzlich erschienenem Werk „Reisen in Celebes" (I, S. 110, Fig. 44), sowie schon vorher bei MEYER und RICHTER[1] besprochen und abgebildet, während das andere sich in der ethnographischen Sammlung der Bat. Genootschap van Kunsten en Wetenschappen befindende und von den Kajan stammende, in der vierten (Supplement) Ausgabe des Catalogs (Batavia, 1894) derselben unter 6122 (S. 120) erwähnt wird als „Fraai à jour bewerkte, yzerhouten ryststamper *alu bĕranak*,[2] waarin twee uit hetzelfde stuk hout gesneden staafjes, by het stampen op en neêr gaande, geluid maken. Vooral by oogst-feesten in gebruik."

Auch das eine unserer Stücke (Plate XXXVI, Fig. 2), 315 cm lang, dürfte, wie uns der Schmuck der Spitze annehmen lässt, für ein Säe- oder Erntefest bestimmt gewesen sein; der Bezeich-

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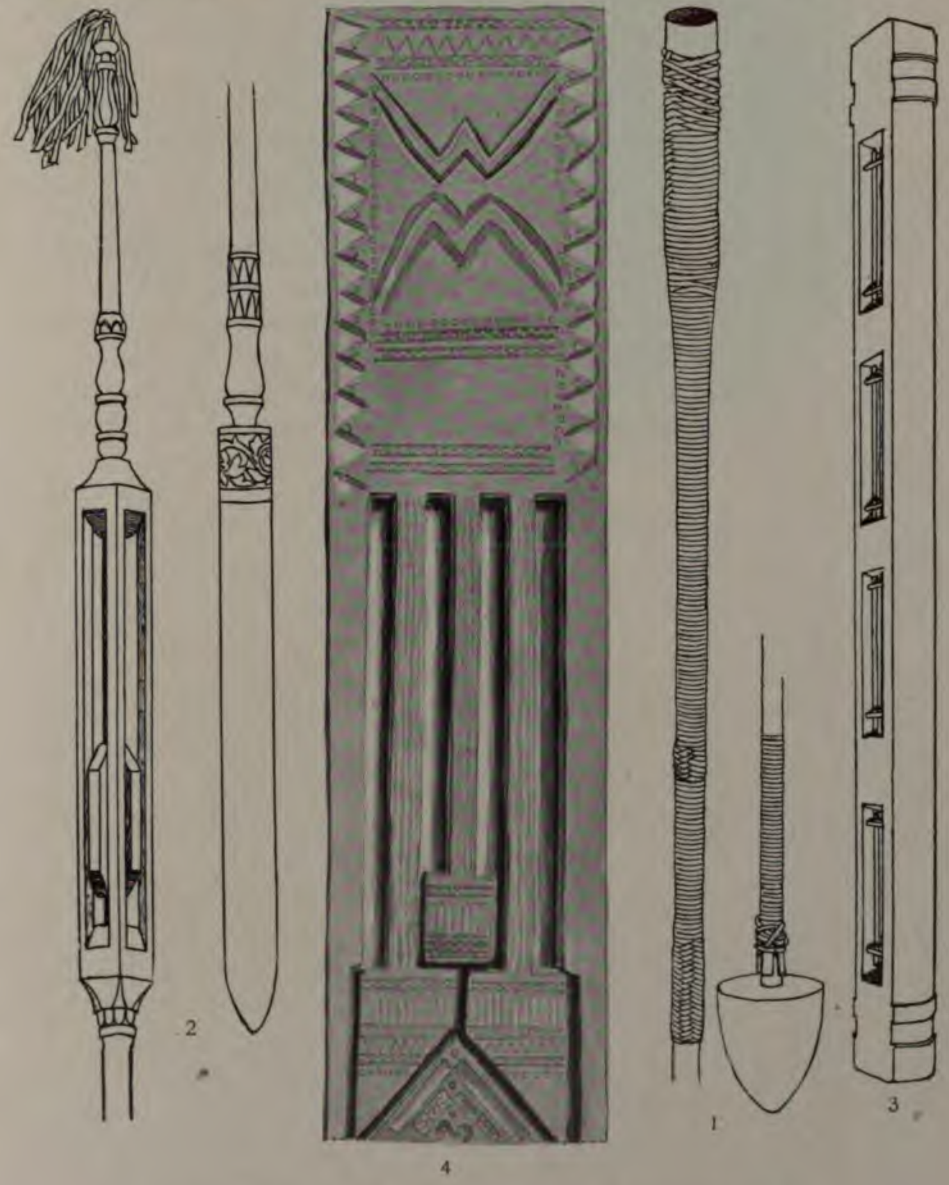
[1] Celebes I, S. 32, Tafel VIII, Fig. 15.

[2] *Alu* = Reisstampfer; *bĕranak* = Kinder besitzen, Kinder bekommen, entbunden werden, etc. (s. KLINKERT, s. v. *anak*).



INDONESISCHE SÄESTÖCKE UND KETTENBÄUME MIT LÄRMVORRICHTUNG.

1, Säestock, Celebes; 2, Säestock, West-Borneo; 3, Kettenbaum, Saleyer; 4, Kettenbaum, Sekampong, Lampong'sche Residentschaft.

nung „Reisstampfer" aber stehen wir für das Stück von Celebes und jenes von Borneo in Batavia mehrerer Gründe halber skeptisch gegenüber. Erstens ist uns ein weiteres solches weder unter dem uns hier vorliegenden Material noch aus der Litteratur über Reisstampfer, die bei MEYER und RICHTER, S. 32, recht vollständig gegeben, mit Lärmvorrichtung bekannt geworden. Zwar erwähnen letztere Autoren einer solchen bei einem durch CAMPEN[1] abgebildeten Stück von *Halmahèra,* aber nur auf der Abbildung fussend, während CAMPEN selbst im Text von derselben mit keinem Worte spricht; die Abbildung dürfte daher einen à jour gearbeiteten oder mit Schnitzwerk verzierten Stampfer für festliche Zwecke vorstellen, während uns vorliegende Stücke aus dem nahen *Tidore*[2] sich in ihrer Form kaum von solchen anderer indonesischer Provenienz unterscheiden.

Zweitens dürfte der Zweck der Lärmvorrichtung, die Erzeugung eines Tones als Begleitung einer in bestimmtem Taktmass verrichteten Arbeit, bei einem Reisstampfer in Folge des durch das Stampfen im Mörser selbst hervorgerufenen Geräusches illusorisch werden, was aber bei der Arbeit des Säens mittelst solchen Gerätes nicht der Fall, worauf Prof. J. J. M. DE GROOT, im Lauf eines Gespräches über diese Frage, unsere Aufmerksamkeit lenkte.

Endlich stimmt die Form des unteren Endes unseres Stückes ziemlich gut mit der des oben erwähnten abgebildeten von Celebes überein, und dieselbe ist bei der Form 16/412 und 659/62 in Fig. 1 (224 cm lang) ebenfalls ziemlich stumpf.

Wir sind daher geneigt, solange keine unwiderlegliche Beweise dagegen erbracht sind, anzunehmen, dass es sich auch bei den beiden fraglichen Stücken um „Säestöcke" handle, und dass hier, zumal betreffs des durch F. und P. SARASIN mitgebrachten wiederum einer jener Fälle vorliegt, wo selbst so tüchtige Forscher wie diese, aus dem einen oder anderen Grunde, von Eingeborenen unzutreffende Angaben erlangen,

[1] Eenige mededeelingen over de Alfoeren van Hale-mahèra (Bydr. Kkl. Inst. T. L. und Volkk., 4e volgr., deel VIII, p. 162 ff.), p. 168 und Tafel II, Fig. 10 b.

[2] 370/2111–2112; Cat. Kol. Tentoonst. Amst. 1883, 9e kl., no. 213/16–17.

worauf zumal TEN KATE hinweist und von derartigen Erfahrungen warnt.[1]

Unsere Annahme erhält eine weitere Stütze durch einen bei DE CLERCQ und SCHMELTZ[2] beschriebenen Gegenstand, der zum Einstampfen des Sago in Körben dient, also zu einer Arbeit, die selbst kein Geräusch erzeugt. Auch hier ist wiederum das obere Ende à jour gearbeitet, und die Öffnung in demselben enthält eine gelbe Perle, wodurch ein, wenn auch nur schwaches, Geräusch während der Arbeit entsteht.

Eine Lärmvorrichtung findet sich auch an anderen Geräten indonesischer Provenienz, so u. a. bei *Kettenbäumen der Webgestelle.* Schon MEYER und RICHTER[3] haben einige Beispiele dafür gegeben, und auch uns liegt hier einschlägiges Material, u. a. von Celebes (Plate XXXVI, Fig. 3) und den *Lampong* auf Sumatra (Fig. 4) vor. Das erstere derselben (370/2030) gehört zu einem im Cat. Kol. Tentoonst. Amst. 1883, no. 367/1 als von Celebes stammend aufgeführten Webstuhl, stammt aber, wie die mitgesandte Inventarakte lehrt, von der Insel *Saleyer* und steht, falls nicht damit übereinstimmend, doch jedenfalls dem durch MEYER und RICHTER, p. 42 erwähnten Stücke aus der Sammlung der ehemaligen Indischen Instellung zu Delft sehr nahe. Das Stück ist 95 cm lang und 5.5 cm breit. Hier wie dort ist die Aushöhlung durch drei Querbrücken in vier Teile geschieden, die eine Anzahl kurzer Rohrstäbchen enthalten, oberhalb welcher wieder zwei derselben quer in der Wand des Objects befestigt sind, um das Herausfallen zu verhüten. — Das zweite (370/2361), 146 cm lang und 19 cm breit, zur Hälfte hier abgebildete Stück stammt aus der Abteilung *Sĕkampong* der *Lampong*'schen Residentschaft, ist im Cat. Kol. Tentoonst. Amst. 1883, 10e kl. als no. 303/4 aufgeführt,[4] und besteht aus einem schwarzgrau gefärbten, mit Schnitzwerk verzierten Brett, das in jeder Hälfte drei, aus dem vollen Holz geschnitzte Rasselkörper enthält, wie dies aus unserer Abbildung ersichtlich. Diese Lärmvorrichtung ähnelt jener in dem bei MEYER und RICHTER, Tafel III, Fig. 22, abgebildeten Stücke von Celebes, sowie der in dem auch von diesen Autoren (S. 42) erwähnten und uns im Museum vorliegenden Stücke aus Central-Sumatra.[1] Über weitere uns vorliegende gleichartige Stücke von anderen Inseln des malayischen Archipels später.

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[1] Reizen en onderzoekingen in Noord Amerika, Leiden, 1885, p. 4, und besonders p. 197, nebst den Anmerkungen 3 und 140.

[2] Ethnographische Beschryving van de West- en Noordkust van Nederlandsch Nieuw-Guinea, p. 69, und Tafel XVII, Fig. 2.

[3] Ethnologische Miscellen II, S. 42.

[4] Als Folge eines Druckfehlers steht, l. c., „Sampong."

Was den Zweck der Lärmvorrichtung betrifft, so nehmen einzelne Autoren, und auch P. und F. SARASIN, l. c., an, dass dieselbe gleichsam „zur Controlle des Arbeiters, resp. der Arbeiterin" diene; letztere sagen aber gleichzeitig, dass dadurch „ein für das Ohr der Arbeiterinnen angenehmer taktmässiger Klang erzeugt werde." Das an erster Stelle Gesagte birgt die Unwahrscheinlichkeit in sich selbst, dagegen bringt uns das an zweiter Stelle stehende sofort auf den rechten Weg. Um bei dem „Reisstampfer" zu bleiben, so spricht BÜCHER,[2] ganz richtig von einem dabei erzeugten dumpfen Ton, der zum Kampong der Malayen gehört. Diese Arbeit findet in nächster Nähe der Wohnung statt, die Anwendung einer Lärmvorrichtung als Controllmittel ist hier also unnötig. BÜCHER[3] weist darauf hin, dass der Tonrhythmus seine Bedeutung für die Intensität der Arbeit habe, sowie dass angenommen werden darf, ersterer erleichtere und fördere letztere, und sagt ferner (S. 38 ff.) seines hochinteressanten Werkes: „Wo zwar eine rhythmenbildende Regulirung der Arbeit möglich ist, die letztere aber *keinen eigentlichen Taktschall* ergibt, wird dieser oft durch künstliche Mittel hervorgerufen." „In erster Linie dient dazu die menschliche Stimme, an deren Stelle aber in solchen Fällen auch ein Instrument treten kann, durch das ein Ton hervorgebracht wird." Und hier ergibt sich uns mit einem Mal, welchem Zweck derartige Lärmvorrichtungen dienen, nämlich dem der Befriedigung eines in der menschlichen Natur begründeten Bedürfnisses, des Hervorbringens dem Gehör zusagender Töne als Begleitung eintöniger Arbeiten und zur Bekämpfung der durch dieselben erzeugten

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[1] Abgebildet bei VAN HASSELT, Atlas, Tafel CXIV, Fig. 5.

[2] Arbeit und Rhythmus, dritte Auflage, Leipzig, 1902, S. 36.

[3] Ibid., S. 26.

Ermüdung. So sagt schon SAL. MÜLLER[1] betreffs unserer Säestöcke 16/412 und 659/62: „Zy bestaan uit bamboeriet en verschillen in lengte en dikte onderling van elkander in eene regelmatig afnemende verhouding, ten einde aldus verschillende noten, of hooge of lage tonen voorttebrengen." Unsere Auffassung erhält ferner eine Stütze durch das, was MEYER und RICHTER[2] unter Verweisung auf Bücher sagen, nämlich dass es sich bei jenem Geräusch um eine Suggestion handeln könne, wofür weitere Beispiele bei Webstühlen in Ethn. Misc., l. c., gegeben werden, und auch eine interessante Mitteilung LOEBÈR'S,[3] die mit Bücher's Auffassung betreffs des Zwecks der Lärmvorrichtung, hier am Webstuhl, übereinstimmt, wiedergegeben ist.[4] Solchergestalt dürfte der Beweis genügend erbracht sein, dass nur die an zweiter Stelle durch P. und F. Sarasin ausgesprochene Annahme als die zutreffende aufzufassen ist.

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[1] Verhandelingen over de natuurlyke geschiedenis der Nederlandsche overzeesche bezittingen, Leiden, 1839–1849, p. 444.

[2] Celebes, I, p. 32.

[3] Het weven in Nederl.-Indië: Bull. Kol. Mus. Haarlem, No. 29, 1903, p. 4.

[4] Celebes, I, p. 43.

ZUR FRAGE DER GEHIRNUNTERSUCHUNG BEI ÄRZTLICHEN SECTIONEN.

VON JOHANNES RANKE,

MÜNCHEN.

WO es Ärzte gibt, die Sectionen machen, werden in der ganzen civilisirten Welt in jedem Jahre viele tausende von Gehirnen der ärztlichen Untersuchung unterzogen. Das Gehirn ist neben dem Schädel anerkannt das wichtigste Studienmaterial der Anthropologie. Leider ist aber bisher noch der Gewinn für die Anthropologie aus den zahlreichen Beobachtungen bei Sectionen im allgemeinen sehr gering. Für die Mehrzahl der wichtigsten Probleme konnten bisher diese Massenuntersuchungen, wie solche allein eine sichere Grundlage für statistische Betrachtungen geben können, noch nicht verwertet werden. Man ist für die grundlegenden Fragen über das normale Gehirn bisher so gut wie ausschliesslich angewiesen nur auf das Studium einzelner besonders sorgfältig conservirter Gehirne der Mehrzahl nach psychologisch mehr oder wenig interessanter Persönlichkeiten wie Gelehrter oder Verbrecher, oder es standen im besten Fall, z. B. für Untersuchung von Rassengehirnen relativ kleine Serien solcher in anatomischen Sammlungen conservirter ausgewählter Gehirne zur Verfügung, deren relativ geringe Anzahl nicht genügt, um eine genügend fundirte Statistik gegründet auf Vergleichung mit normalen Gehirnen der Durchschnittsmenschen verschiedener Rassen und Völker herzustellen. Die Anthropologie hat bisher fast allein nur die bei den Sectionen gewonnenen Gehirngewichte für ihre Fragen statistisch verwerten können. Aber auch hier handelt es sich meist nicht um ein wahrhaft gleichartiges Material, sodass auch gegen diese statistischen Vergleiche gewichtige Einwendungen gemacht werden müssen. Es finden sich bei der Abnahme der Gehirngewichte nicht zu vernachlässigende Differenzen bezüglich der Hirnhäute, der Blutfülle, der Abtrennungsstelle des verlängerten Marks u. a., sodass exact nur die von einem und demselben Forscher nach der gleichen einwandfreien Methode persönlich gewonnenen Resultate unter einander vergleichbar sind, wie z. B. die in dieser Hinsicht mustergültigen Gehirnwägungen von Th. von Bischoff.

Für die Anthropologie werden die ärztlichen Gehirnsectionen erst dann ihren vollen Wert erhalten, wenn wir den Ärzten, deren Mitarbeit wir nicht entbehren können, ein einfaches Schema der Gehirnuntersuchung in die Hand geben, in Form tabellarischer Zusammenstellung der zu beachtenden Fragen, als Zählblätter, die bei jeder Gehirnsection auszufüllen wären. Diese Zählblätter denke ich mir mit einfachsten schematischen Abbildungen versehen und zu den einzelnen Fragen in kürzesten Worten eine Anleitung, diese richtig zu beantworten, also ähnlich wie das Schema der „Frankfurter Verständigung" für die Schädelmessung.

Seit Jahren habe ich mich bemüht, diesen Gedanken in die Praxis zu übersetzen. Ein Einzelner kann hier nicht für sich vorgehen, die betreffenden Schemata und Vorschläge müssen von der Autorität einer Gesamtheit der Forscher, wie sie die anthropologischen Gesellschaften in allen Culturstaaten representiren, ausgehen. Ich habe mich entschlossen, dazu immer von neuem den Mahnruf zu erheben. Hier möchte ich an einem Beispiel zeigen, dass es gelingen wird, auch Fragen der statistischen Methode zugänglich zu machen, vor denen die Praktiker bisher mit einer Art Scheu zurückgewichen sind, z. B. die Anordnung und das gegenseitige Verhältnis der Grosshirnwindungen.

Bei einer Anzahl besonders wichtiger Probleme, z. B. der vergleichenden Messungen der „motorischen Rindenfelder,"[1] kommt es auf genaue Messung der Windungen an, sodass aus diesen Messungen die Oberfläche der betreffenden Rindenpartie aus der Breite der Windungen und der Länge und Tiefe der Grenzfurchen, berechnet und mit dem Planimeter nachgeprüft werden kann.

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[1] Wie solche z. B., D. J. Cunningham, Right-Handedness and Left-Brainedness (Huxley Lecture, 1902, Journal of the Anthropological Institute), ausgeführt hat.

Ich möchte hier die Ausführung meiner Methode zum ersten Mal den Fachgenossen *an Abbildungen* vorlegen, um jeden in den Stand zu setzen, nachzuprüfen und mitzuarbeiten.

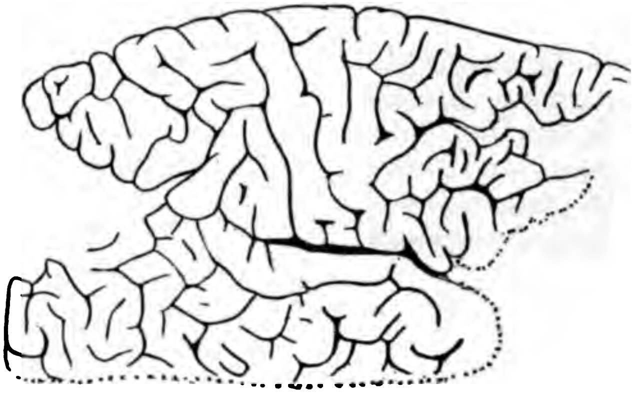

FIG. 31. ABGEROLLTE OBERFLÄCHE EINES MENSCHLICHEN GEHIRNS. RECHTE HEMISPHÄRE.

Die Messung der Windungen führe ich in der Weise aus, dass ich „Glaspapier" auf die betreffenden Gehirnstellen lege und auf dieses die Grenzen der Windungen und den Verlauf der Furchen genau aufzeichne. An diesen Zeichnungen wird dann mit Zirkel und Planimeter die (freilich horizontal angenommene) Oberfläche der betreffenden Gesamtwindung und jeder Abschnitt derselben gemessen. Die Tiefe der Furchen

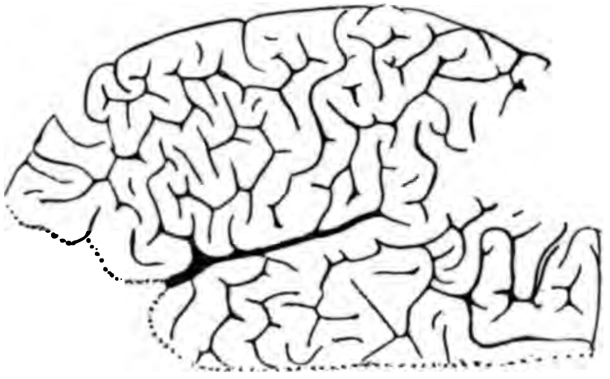

FIG. 32. ABGEROLLTE OBERFLÄCHE EINES MENSCHLICHEN GEHIRNS. LINKE HEMISPHÄRE.

muss dazu noch an mehreren Stellen direkt bestimmt werden, damit die aus der Länge der Furche (gemessen mittelst Fadens oder des Messrädchens an der Zeichnung) und der Tiefe der Furche sich ergebende Zusatzfläche zu der Grösse der Windungsoberfläche addirt werden kann.

Bei der Abnahme solcher Zeichnungen kann man, wie das die beigegebenen Abbildungen direct zeigen, die convexe Oberfläche der Grosshirnhemisphäre als eine Art Cylindermantel mittelst solchen Glaspapiers, gewissermassen abrollen. Die beiden Abbildungen (Figs. 31, 32) geben derartig abgerollte Oberflächenzeichnungen des Gehirns. Da, wo die Convexität des Gehirns nach vorn und hinten umbiegt, gelingt selbstverständlich die „Abrollung" nicht mehr in verticaler Richtung, sie muss da in horizontalen Teilstücken ausgeführt werden, die dann wenigstens an einer Stelle, wie es die Abbildungen zeigen, klaffen müssen. Aber an derartigen Abbildungen treten die wirklichen Beziehungen der einzelnen Windungen und Furchen zu einander mit bisher, wie mir scheint, unerreichter Deutlichkeit heraus. Bei der Herstellung der Abbildungen gelingt es leicht, das Klaffen der „Abrollung" an eine nicht oder wenig störende Stelle, den zu behandelnden Einzelfragen entsprechend, zu verlegen. Meist wird es sich ja nicht um Abrollung der ganzen Oberfläche, sondern um die einzelner oder benachbarter Windungen handeln. Ich habe z. B. die geschilderte Abbildungs- und Messmethode zuerst zur Untersuchung der Centralfurchen und der Centralwindungen, sowie der Broca'schen und Wernicke'schen Windungen benutzt.

PHONOGRAPHIRTE INDIANERMELODIEEN AUS BRITISH COLUMBIA.

VON O. ABRAHAM UND E. M. v. HORNBOSTEL.[1]

SEIT Dr. W. FEWKES[2] im Jahre 1890 als erster Indianermelodieen auf der Phonographenwalze festgehalten hat, ist der Phonograph zu einem wichtigen Hilfsmittel der musikalisch-ethnologischen Forschung geworden. Besonders amerikanische Forscher waren erfolgreich bestrebt, das wertvolle Material an primitiver Musik aus den Reservationen zu sammeln und so vor dem Untergange zu bewahren.

Herr Professor Dr. FRANZ BOAS, dem die Wissenschaft zahlreiche Publikationen auf dem musikalisch-ethnologischen Grenzgebiete verdankt, war so freundlich, uns eine grössere Sammlung von Phonogrammen aus dem Besitz des Museum of Natural History, New York, zur musikwissenschaftlichen Bearbeitung nach Europa zu schicken. Wir freuen uns, unseren Dank in Form der vorliegenden Studie abstatten zu können, die wir mangels genauerer Orientirung auf das rein Musikalische beschränken müssen.

Die Gesänge stammen von den Thompson River Indianern, einem *Salish* Stamme aus dem Innern von British Columbia.

Nachdem wir die Phonogramme in der üblichen Weise nach dem Gehör notirt hatten, wurden die Tonhöhen nach dem Vorgange von GILMAN[3] tonometrisch bestimmt. Unter der Voraussetzung, dass alle Aufnahmen bei der gleichen Umdrehungsgeschwindigkeit der Walze erfolgt sind, haben wir die Bestimmungen der Tonhöhe und des Tempos bei einer einheitlichen Rotationsgeschwindigkeit vorgenommen. Die Wahl der absoluten Tonhöhe, auf die es bei Gesängen nur wenig ankommt, richtete sich nach der normalen Stimmlage. Die Männerlieder bewegen sich danach meist in der kleinen, die Frauengesänge (No. 8 und 9) in der ein- und zweigestrichenen Octave.

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[1] Aus dem Psychologischen Institut der Universität Berlin.

[2] Journ. of Amer. Folk-Lore, April, 1890.

[3] Philosophical Review, Boston, 1892.

Die Schwingungszahlen dieser Tonhöhen sind am Schlusse zusammengestellt; diese Skalen stimmen mit den Tönen der Melodieen nur in ihren Relationen, nicht der absoluten Höhe nach überein, weil das Notenbild nicht die Tonhöhe der Messung, sondern die unserer ursprünglichen Niederschrift wiedergibt. Unter der Reihe der Schwingungszahlen (n) findet man die Grösse der leiterbildenden Intervalle (i) in Hundertsteln des temperirten Halbtons (*Ellis'* Cents), und endlich die Intervalle vom mutmasslichen Hauptton der Melodie aus gerechnet (σ).

Besondere Schwierigkeit bot in vielen Melodieen die rhythmische Gliederung und die Takteinteilung, worauf wir noch weiterhin ausführlicher zurückkommen werden.

TONLEITERN.

Unter den 43 mitgeteilten Melodieen finden sich vier mit nur *zwei Stufen* (No. 10, 18, 25, 34); bei zwei Melodieen tritt allerdings noch ein dritter, leittonartiger Ton von sehr unbestimmter, daher nicht messbarer Tonhöhe, hinzu. Der melodische Schwerpunkt liegt bei diesen Melodieen auf dem tieferen Ton; die Intervallgrössen betragen einen ¾ Ton (No. 34), eine kleine Terz (No. 25) oder eine neutrale Terz (No. 10, 18).

In den zehn *dreistufigen* Melodieen (No. 1, 2, 7, 9, 15, 26, 31, 32, 33, 40) schwankt der Umfang zwischen kleiner Terz und Tritonus. Der melodische Schwerpunkt liegt zweimal auf der zweiten, sonst immer auf der tiefsten Tonstufe; bei zwei Melodieen (No. 1, 9) ist neben dem Hauptton dessen Oberquarte (nach Art unserer Subdominante) melodisch ausgezeichnet. Die Leitern bestehen aus Secundenschritten mit Ausnahme von dreien, die kleine (No. 1, 9) oder grosse Terzen (No. 32) enthalten. Die Intervalle entsprechen meist den europäischen; nur in drei Liedern (No. 9, 33, 40) weicht die Intonation merklich von unserer Stimmung ab. In No. 33 gibt das Notenbild unsern (subjectiven) Melodieeindruck wieder; de facto ist die kleine Terz in zwei annähernd gleiche ¾ Töne geteilt.

Die fünfzehn *vierstufigen* Gesänge (No. 3, 5, 6, 8, 12, 13, 14, 16, 17, 19, 21, 24, 27, 38, 43) bewegen sich im Umfang einer Quarte bis kleinen Septime. Der melodische Schwerpunkt liegt neunmal auf der tiefsten, fünfmal auf der zweiten und einmal auf der vierten Stufe. Daneben tritt siebenmal die Oberquinte (Dominante), einmal die Unterquarte (Dominante) und fünfmal die Oberquarte (Subdominante) hervor. Sieben Lieder bewegen sich ausschliesslich in Secunden, fünf Leitern enthalten die kleine, eine die neutrale, eine die grosse Terz, und zwei eine Quarte (No. 3, 21). Drei Melodieen (No. 3, 16, 21) scheinen für den europäischen Hörer auf Dreiklängen aufgebaut zu sein, und zwar zwei (No. 3, 21) auf einen Dur-, die dritte (No. 16) auf einen Moll-Dreiklang. Dass diese, unserer simultanharmonischen Musik entlehnten Begriffe auf die Indianermusik nicht ohne weiteres übertragen werden dürfen, geht schon aus den zahlreichen und bedeutenden Abweichungen von den consonanten Intervallen hervor. Von den fünfzehn vierstufigen Melodieen enthalten mehr als die Hälfte (9) Intervalle, die zwischen zwei benachbarten europäischen ungefähr die Mitte halten.

Der Umfang der neun[1] *fünfstufigen* Gesänge (No. 11, 20, 28, 29, 30, 37, 41, 42) liegt zwischen einer Quinte und einer Octave. Sechsmal ist die erste Stufe mutmasslicher Hauptton, einmal die zweite, einmal die dritte und einmal die vierte. In sämtlichen Stücken ist daneben noch die Oberquarte, resp. Oberquinte melodisch ausgezeichnet, und zwar erscheint die „Dominante" allein sechsmal, die „Subdominante" allein zweimal und beide zusammen einmal.

Drei Leitern enthalten ausschliesslich Secunden, die sechs anderen auch Terzen, von denen zwei klein, zwei gross, und zwei neutral sind. Wieder finden sich vier „Dreiklangmelodieen" (No. 29, 30, 37, 42). Von allen neun Leitern sind nur zwei von nicht-europäischen Intervallen frei, und gerade diese beiden (No. 28, 37) stimmen mit der bekannten fünfstufigen chinesischen Tonleiter (c, d, e, g, a) überein. Diese sind auch die einzigen wirklich pentatonischen Leitern.

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[1] No. 30 enthält zwei Teile mit verschiedener Leiterbildung und wurde deshalb hier doppelt gerechnet.

In vier Liedern (No. 4, 23, 36, 39) werden *sechs Stufen* innerhalb einer kleinen Sexte bis kleinen None benützt. Nur einmal liegt der Schwerpunkt auf der dritten, sonst immer auf der ersten Stufe. In allen vier Melodieen ist die Oberquinte, in zweien auch noch die Oberquarte melodisch betont. Die Leitern sind bis auf eine, die eine grosse Terz und eine Quarte enthält (No. 4) aus Secunden aufgebaut. Die Intervallgrössen weichen von den europäischen ab. Eín Stück (No. 4) erscheint als Durdreiklangmelodie.

Endlich finden wir in zwei Stücken (No. 22, 35) eine vollständige *siebenstufige* Leiter; die Intervalle weichen aber von unserer diatonischen Leiter bedeutend ab. Melodie No. 22 umfasst eine Octave, No. 35 eine grosse None; in ersterer kommt eine Stufe unterhalb der mutmasslichen Tonika, in der andern ein Ton oberhalb der Octave des Haupttons vor. In beiden ist die Oberquarte, in No. 35 auch die Oberquinte ausgezeichnet. Diese erscheint uns daher als Durdreiklangmelodie.

Es zeigt sich also, dass in den meisten der vorliegenden 43 Lieder nur drei bis fünf Töne innerhalb einer kleinen Terz bis grossen Sexte benützt werden. In der überwiegenden Mehrzahl (30) fällt der melodische Schwerpunkt mit dem tiefsten Ton zusammen; zu diesem Ton als Schlusston steigt die in der Höhe beginnende Melodie herab. Eine Ausnahme von dieser fast durchgehend gewahrten Eigentümlichkeit der Melodiebewegung bilden ihrer Natur nach die Melodieen mit geringstem Tonumfang (zwei und drei Stufen); ausser diesen nur das Lied No. 39.

Die Bedeutung der tonometrischen Befunde ist naturgemäss geringer anzuschlagen bei Natursängern, deren Intonation grösseren Schwankungen unterliegt, als bei Instrumenten mit fester Abstimmung. Es kann sich hier nur darum handeln, einen Überblick über die ungefähre mittlere Grösse der Intervalle zu gewinnen. Um dieses Mittel zu berechnen, haben wir ausser den Intervallen zwischen benachbarten Tönen auch die in den Melodieen sprunghaft gebrauchten grösseren Tonschritte berücksichtigt. Man findet also in der zweiten Columne der folgenden Tabelle die Mittelwerte aus sämtlichen vorkommenden Intervallen einer Art (in Cents).

Ausserdem haben wir alle Leitern, die sich durch Beziehung der Melodietöne auf den melodischen Hauptton ergeben, zusammengefasst (vierte Columne). Dabei wurden auch die Intervalle zwischen den unterhalb des Hauptones liegenden Tönen und *diesem selbst* (und nicht dessen tieferer Octave) mitgerechnet. Die beigefügten Gewichtszahlen belehren über die Frequenz der einzelnen Intervalle und Stufen.

Der Zusammenfassung der Einzelwerte haben wir eine Leiter von temperirten Vierteltönen (erste Columne) zugrundegelegt; als Maximum der Abweichungen nach oben und unten wurde also ein Achtel des temperirten Ganztones (25 Cents) zugelassen.

TABELLE I.

	Temperirte Intervalle in Cents.	Mittel sämtlicher Gebrauchs-intervalle.	Gewicht.	Mittel der Leitern.	Gewicht.
Viertelton	50	49	2	—	—
Halbton	100	105	10	115	3
Dreiviertelton	150	156	23	157	12
Ganzton	200	202	49	206	17
Fünfviertelton	250	245	17	243	3
Kleine Terz	300	302	19	304	9
Neutr. Terz	350	356	11	356	8
Grosse Terz	400	397	11	405	11
	450	451	16	450	15
Quarte	500	506	11	501	7
	550	525	2	543	7
Tritonus	600	596	2	596	3
	650	650	1	648	2
Quinte	700	697	1	696	11
	750	—	—	739	5
Kleine Sexte	800	—	—	802	1
Neutr. Sexte	850	838	1	864	1
Grosse Sexte	900	919	1	912	4
	950	—	—	963	2
Kleine Septime	1000	—	—	1007	1
Octave	1200	—	—	1194	2

Man sieht aus der Tabelle zunächst, dass die Frequenz der von den europäischen abweichenden Intervalle so gross ist, dass man sie kaum allein auf Rechnung des Zufalls setzen darf. Vor allem fällt die Häufigkeit des Intervalls von 450 C. auf, das in der Mitte zwischen grosser Terz und Quarte liegt; dass es nicht als Modification der benachbarten Intervalle aufgefasst werden kann, geht daraus hervor, dass es sowohl mit der Terz als mit der Quarte in einer Melodie zusammen vorkommt (No. 17, 19 resp. 35). Auch 3/4 Töne, 5/4 Töne und neutrale Terzen kommen verhältnismässig häufig vor. Von besonderer Bedeutung werden diese Abweichungen, wie schon bemerkt, bei den Dreiklangmelodieen, die sich ja auch bei anderen Indianerstämmen gefunden haben und wiederholt namentlich von J. C. Fillmore für ein „latentes Harmoniegefühl" in Anspruch genommen worden sind. Wir halten dafür, dass diese heikle psychologische Frage auch heute noch nicht spruchreif ist.

RHYTHMUS, TEMPO, AUFBAU UND VORTRAGSWEISE.

Über die ***rhythmischen*** Verhältnisse der Melodieen gibt die folgende Tabelle Aufschluss.

TABELLE II.

Anzahl der Zeiteinheiten innerhalb eines Taktes...		DREITEILIG.					COMPLICIRT.	UNREGELMÄSSIG.
	4	3	6	9¡.	5	7		
Frequenz............	12	9	6	1	2	1	8	4

Vor allem fällt die grössere Häufigkeit der dreiteiligen Rhythmen (zusammen 16) gegenüber den vierteiligen (12) auf, ein Befund, der zu den sonst beobachteten Eigentümlichkeiten primitiver Musik im Gegensatz steht.

Von den beiden Melodieen, die wir in fünfteiligem Rhythmus notirt haben, besteht die eine (No. 5) aus 4/4 Takten, deren letztes Viertel gedehnt ist, während in der andern (No. 19) die 5/8 Takte sich nach dem Schema 1 + 4 gliedern; auch wurde dieses Lied sehr rubato gesungen. Die mit 10/4 bezeichnete Melodie No. 23 ist so frei im Rhythmus, — auch der Trommel-rhythmus ist sehr wechselnd, — dass wir sie der Rubrik „unregelmässig" subsumiren mussten.

In No. 30 schien uns die Einteilung nach 7/4 die einzige Möglichkeit einer Gruppirung, die dem motivischen Aufbau der Melodie halbwegs gerecht wird.

Eine relativ grosse Zahl der Lieder haben einen complicirten rhythmischen Bau: wir finden grössere Perioden, die sich nur in ungleiche Teile zerlegen lassen. Es sind dies die Stücke 7 und 35 (9/4 = 5/4 + 4/4), 18 (12/4 = 5/4 + 7/4) und 31 (12/4 = 7/4 + 5/4), 6 (16/4 = 6/4 + 5/4 + 5/4) und endlich 14 (14/4 = 8/4 + 6/4 oder 6/4 + 8/4).

Zu den complicirten Rhythmen sind auch die Stücke 34 und 40 zu rechnen, deren Gesangsmelodie in einfachem 4/4 Takt steht, während auf jeden Takt drei (in No. 34), resp. sechs (in No. 40) gleichmässige Trommelschläge fallen.

In drei Stücken (No. 13, 22, 28) ist die Durchführung einer gleichmässigen Takteinteilung unmöglich, da die einzelnen Motive bei den verschiedenen Wiederholungen durch Verkürzungen oder Vergrösserungen variirt sind.

Die ausserordentlich schwierige Rhythmisirung der meisten Gesänge wurde zum Teil nur durch die begleitenden Trommelschläge überhaupt ermöglicht. Ausser den erwähnten Stücken No. 23 und No. 22 gaben diese ein gleichmässiges Zeitmass, das als Einheit benutzt wurde. Da in den Trommelrhythmen dynamische Accente fehlen, wurde die Takteinteilung, die nur der Bequemlichkeit des europäischen Lesers dienen soll, nach melodischen Gesichtspunkten vorgenommen.

Auffallend ist, dass in den ersten Phonogrammen (bis No. 20) die Trommelbegleitung, wo sie überhaupt vorkommt, die schlechten Taktteile betont (mit Ausnahme von 5), während in den folgenden Nummern (bis 30) immer die guten Taktteile accentuirt sind; in den letzten Phonogrammen (No. 31–43) wechseln synkopirte und unsynkopirte Trommelrhythmen ab. Während die Rhythmisirung der Trommelschläge immer sehr scharf ist, gestattet sich der Sänger gelegentlich grössere Freiheiten. So kommt es, dass in einigen Stücken (No. 38, 41) die anfangs synkopirenden Schläge im Verlauf sich den guten Taktteilen nähern oder umgekehrt.

Unter den gesamten 43 Stücken sind 35 von Schlaginstrumenten begleitet und zwar 17 von synkopirenden, 17 von nichtsynkopirenden, 1 von unregelmässigen Trommelschlägen. Nur acht Lieder sind sozusagen a capella gesungen.

Das *Tempo* der Melodieen erwies sich als auffallend gleichmässig: in 33 Gesängen fanden wir M.M. ♩ = 158 bis 184; die meisten von diesen halten sich zwischen 164 und 170. In langsamerem Tempo stehen No. 13 und 14 (♩ = 140, resp. 130); ferner No. 10 (♩. = 120) und 3 (♪ = 138), die beide ohne Trommelbegleitung sind. Schnellere Trommelschläge finden sich in No. 21 (♩ = 198), No. 30 (♪ = 224) und No. 36 (♪ = 200).

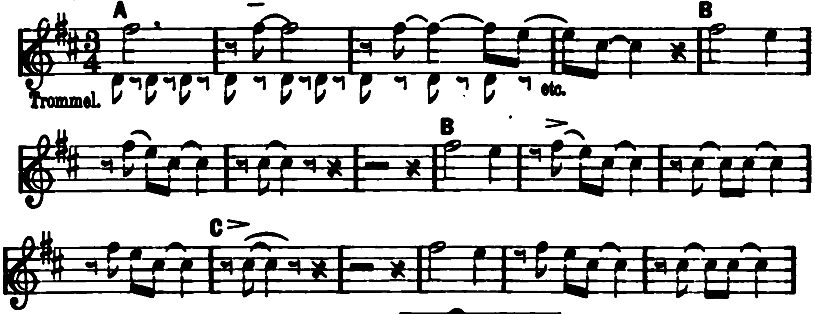
Die Gesänge sind insofern als primitiv zu bezeichnen, als sich nirgends ein complicirterer *Periodenbau* findet. Eine nicht allzulange Melodie wird immer von neuem mit kleinen melodischen und rhythmischen Varianten wiederholt (Strophenlied); die Melodie besteht wieder aus kleinen Teilen, die sich untereinander meistens sehr ähnlich sind.

Die *Vortragsweise* der Gesänge bietet manches Bemerkenswerte. Während ein eigentlicher Sprechgesang nicht vorkommt, wird der Gesang in No. 30 und 32 durch ein Motiv unterbrochen, das auf einer constanten Tonhöhe im Rhythmus der Melodie anscheinend von einem zweiten, entfernteren Sänger intonirt wird. In No. 2 wird der Gesang zweimal durch gesprochene Worte unterbrochen, die vielleicht nicht zum Lied gehören. Eigentümlich berühren die emphatische Vortragsweise (namentlich in No. 2 bis 7, 10) und die stark hörbaren Inspirationsgeräusche (No. 10, 16), die den Eindruck des Aufgeregten erzeugen.

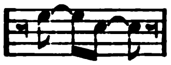
Die meisten Gesänge sind Tanz- oder Spiellieder; andere sind als lyrische, religiöse oder Medicingesänge bezeichnet; eine bestimmte *musikalische* Charakteristik der einzelnen Typen liess sich aber nicht finden.

1 (140). DANCING-SONG.

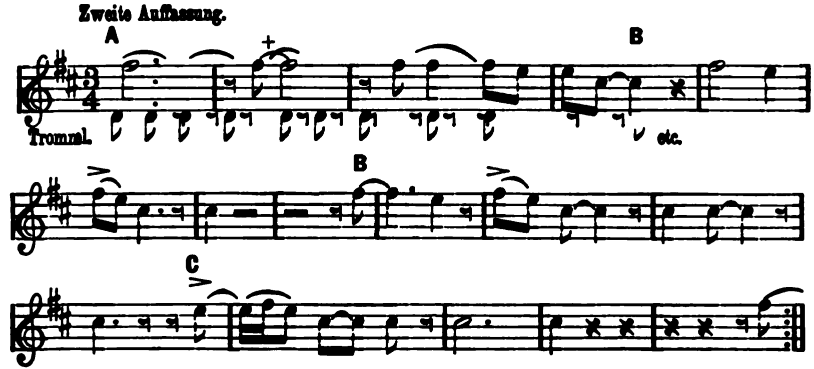
♩ = 176. **Erste Auffassung.**



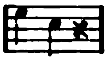
Variante.



Zweite Auffassung.

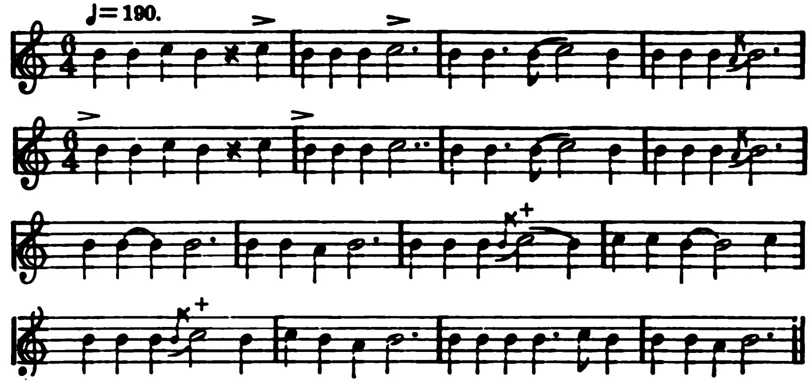


Variante.

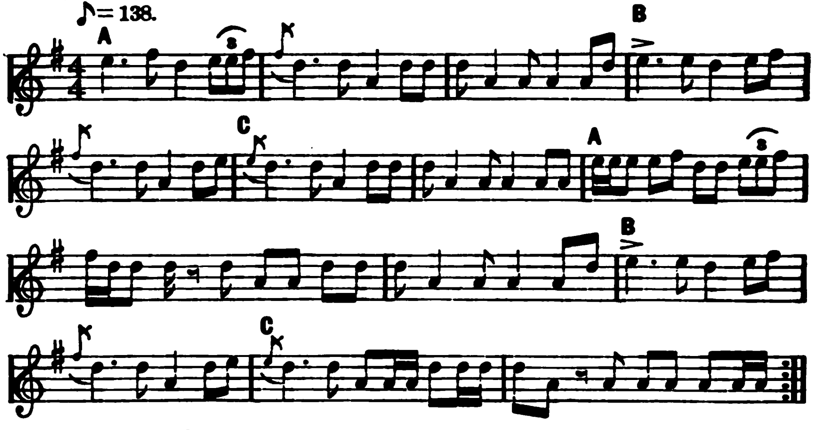


2 (141). LÉHAL GAMBLING-SONG.

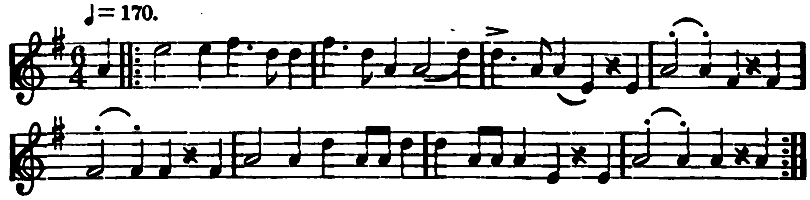
♩ = 190.



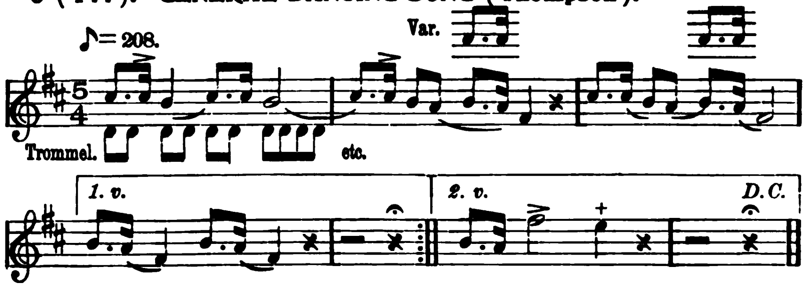
3 (142). RELIGIOUS DANCE (Prayer).



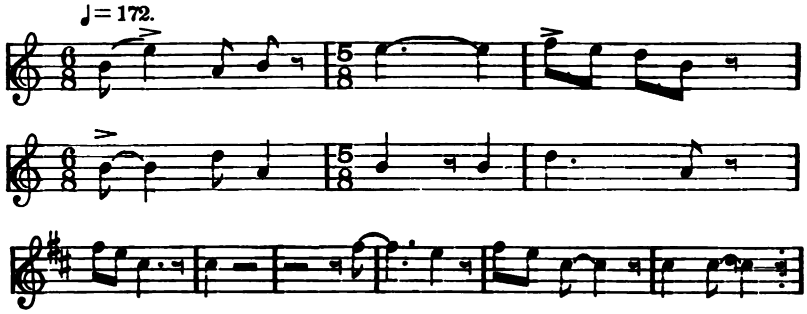
4 (143). LÉHAL (Thompson and Okanagon).



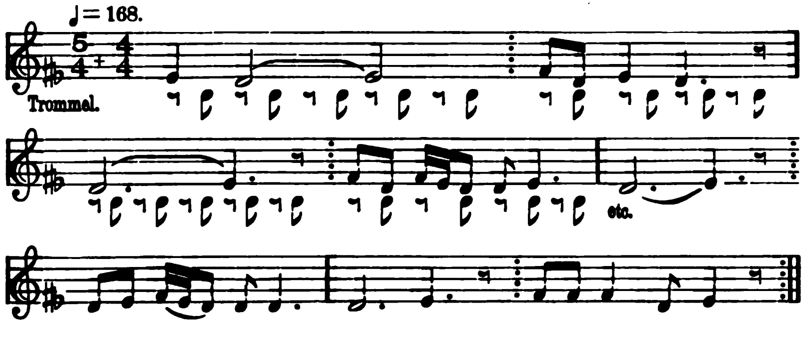
5 (144). GENERAL DANCING-SONG (Thompson).



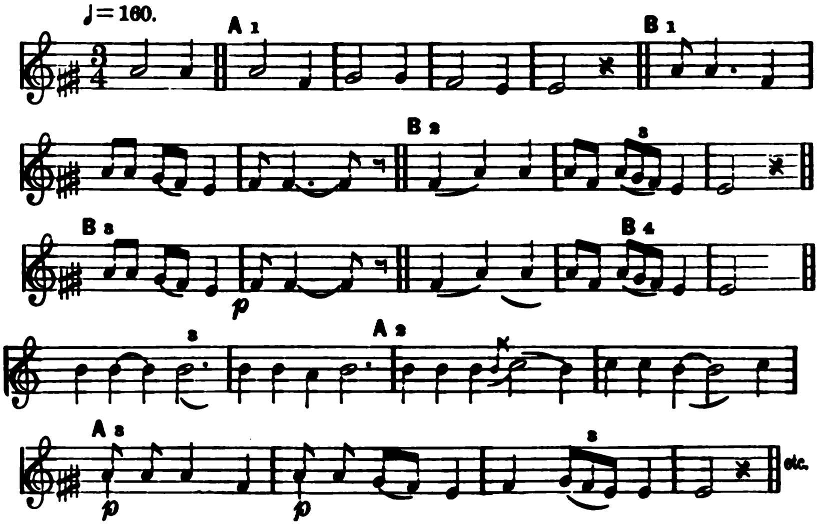
6 (145). RELIGIOUS SONG.



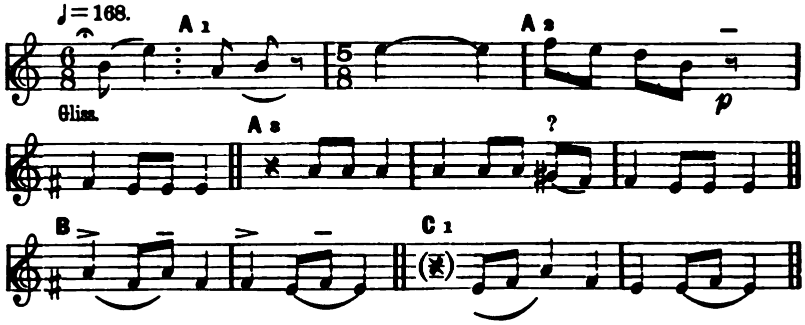
7 (146). DANCING-SONG FOR POTLATCH.

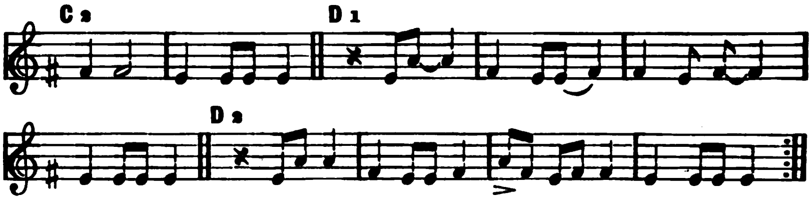


8 (147). WOMAN'S SONG.

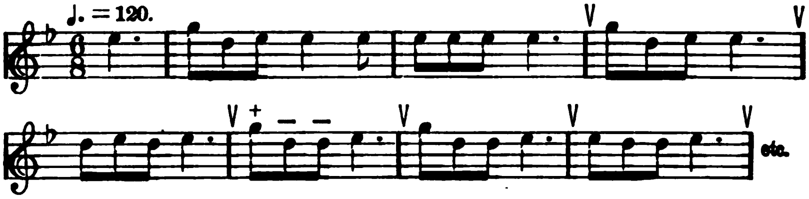


9 (148). WOMAN'S SONG.

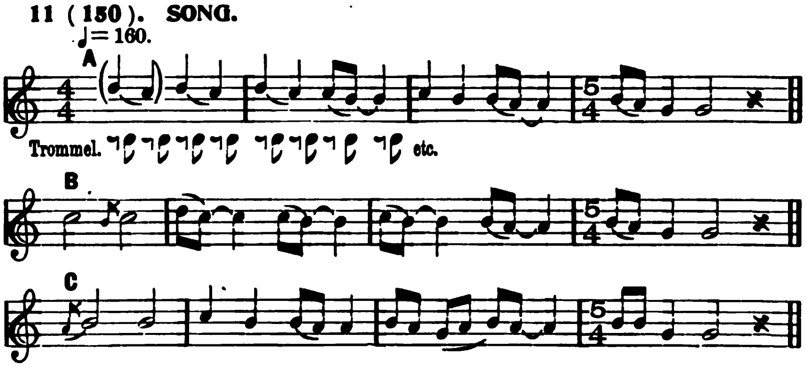




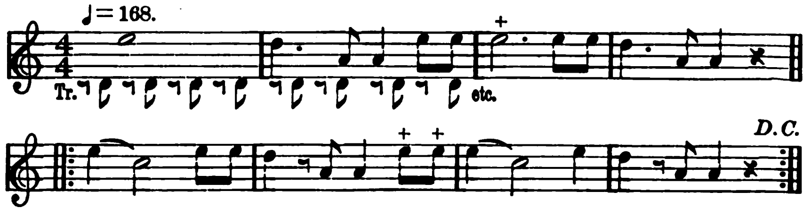
10 (149). GRISLY-BEAR TWIN SONG.



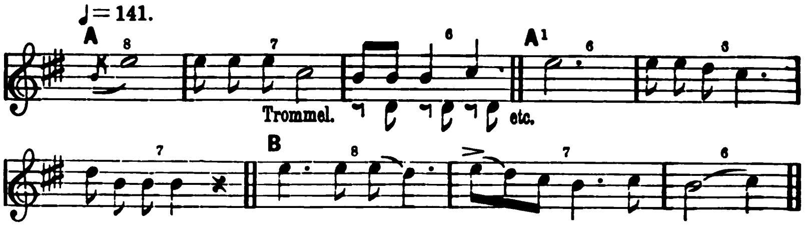
11 (150). SONG.

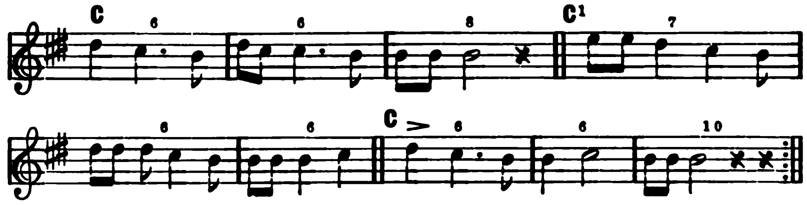


12 (151). SONG.

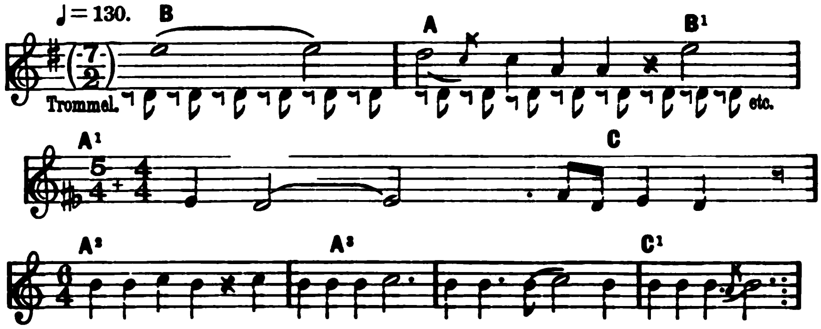


13 (152). SONG.

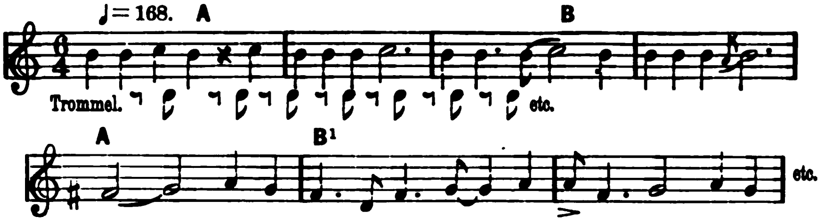




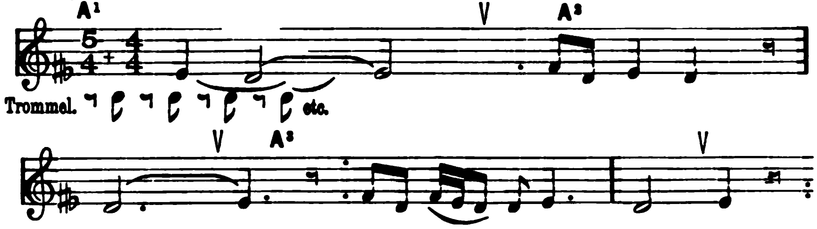
14 (153). SONG.



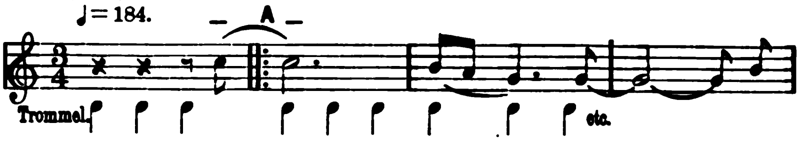
15 (154). DANCING-SONG.

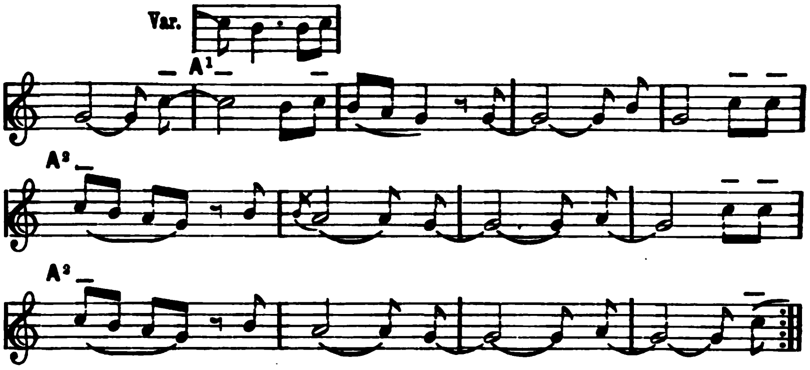


16 (155). DANCING-SONG.

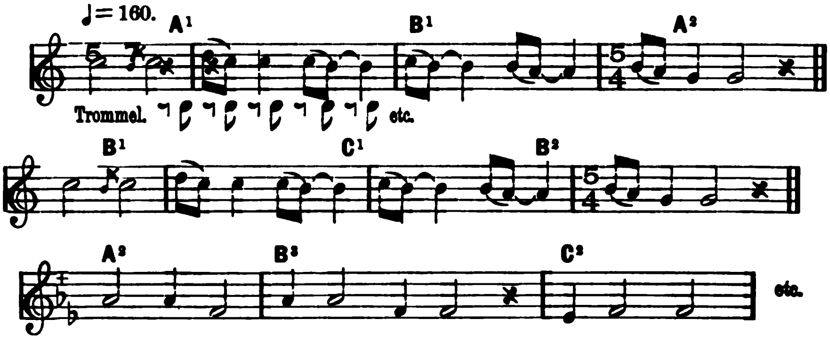


17 (156). DANCING-SONG.

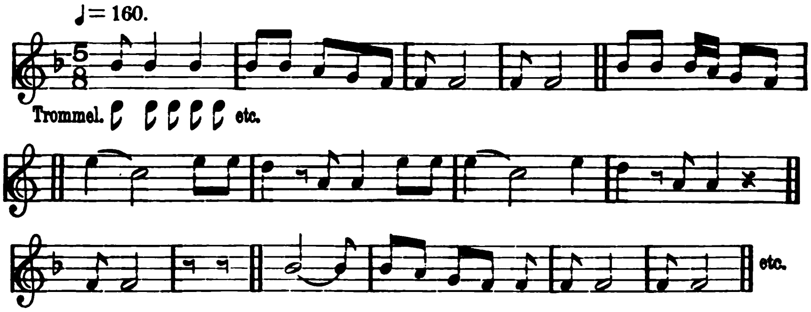




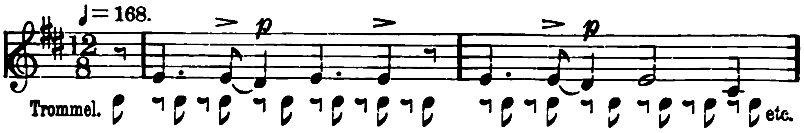
18 (158). DANCING-SONG.

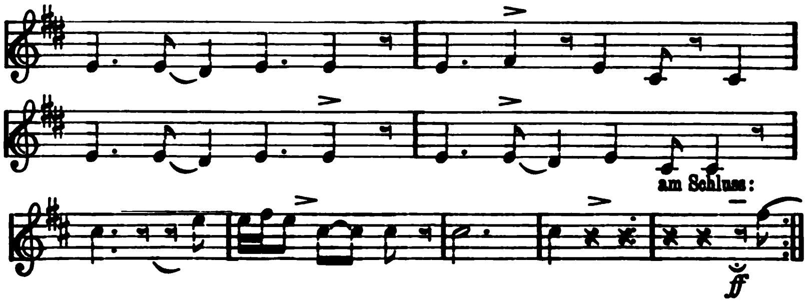


19 (159). LYRIC SONG.

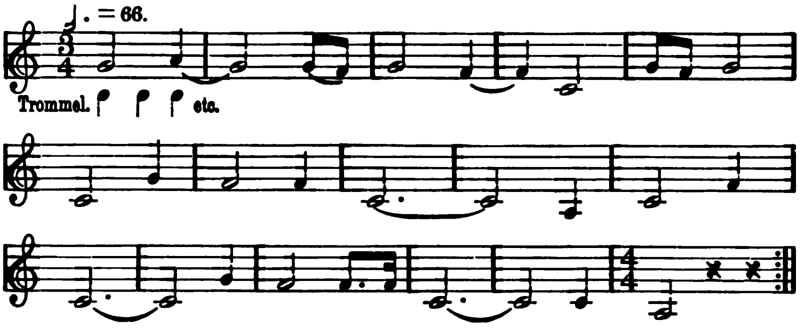


20 (160). DANCING-SONG.

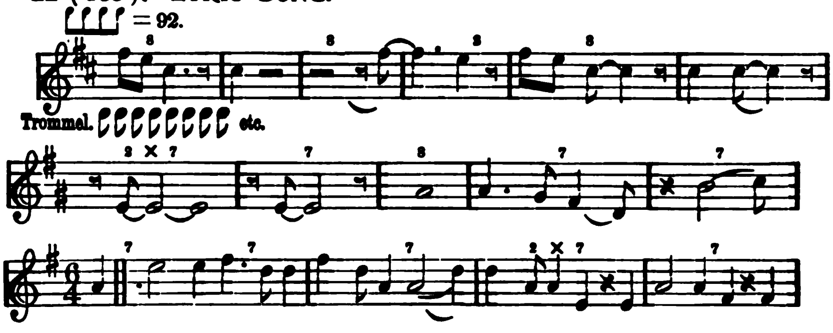




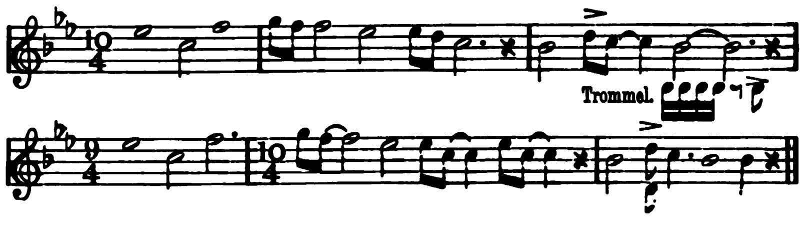
21 (162). MEN'S DANCING-SONG.



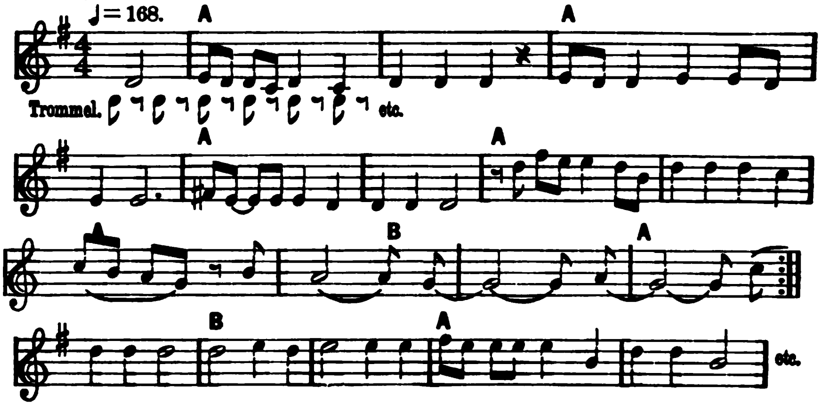
22 (163). LYRIC SONG.



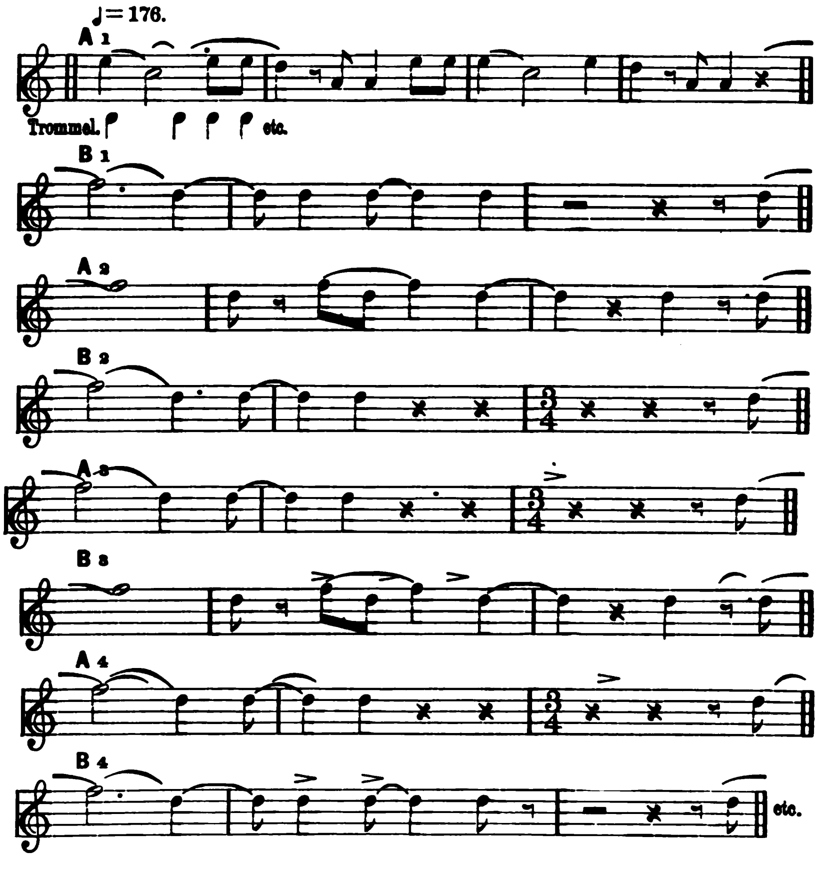
23 (164 a). LYRIC SONG. Freier Rhythmus.



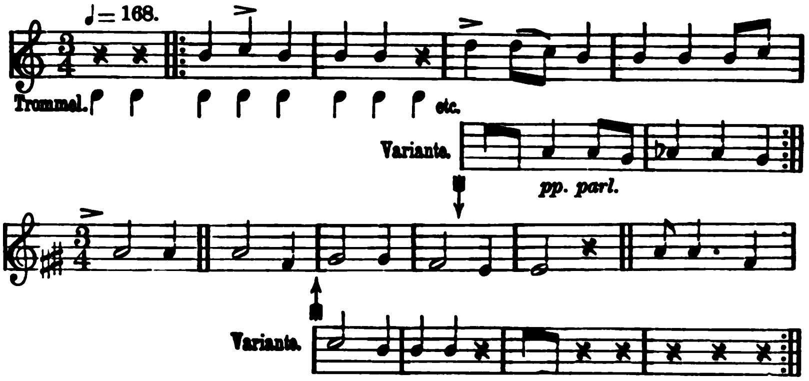
24 (164 b). MEDICINE-SONG.



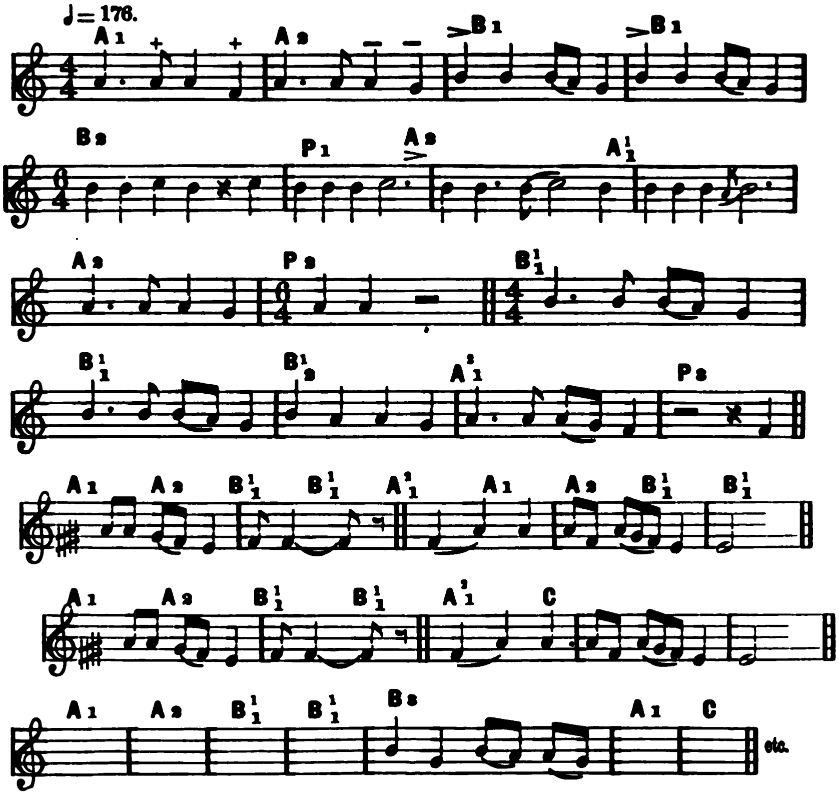
25 (165). DANCING-SONG.



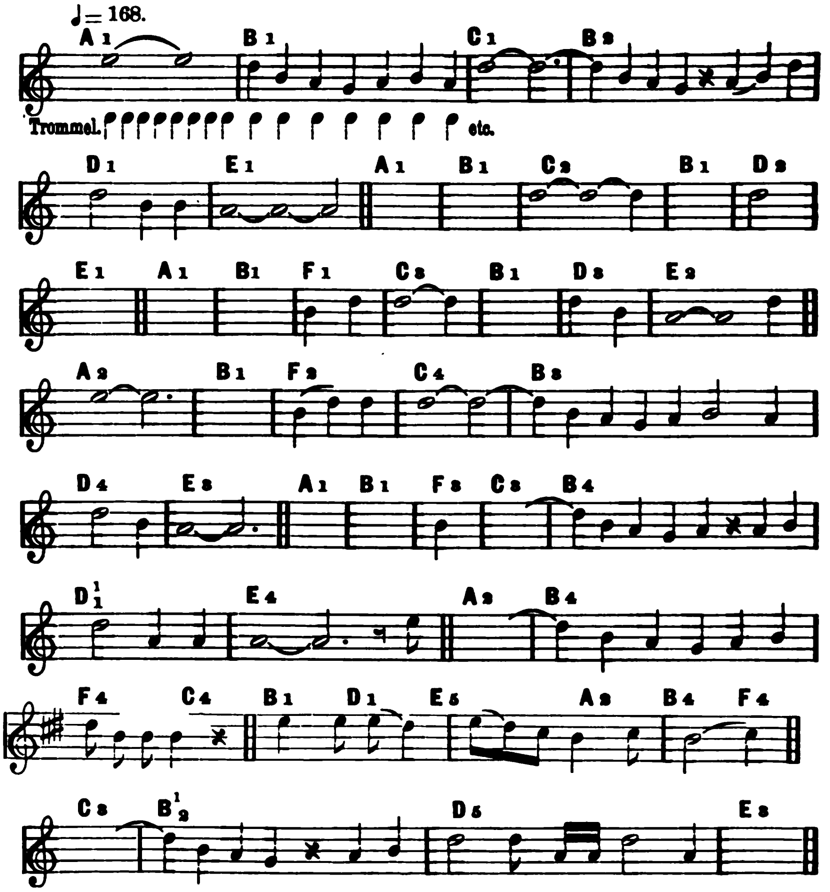
26 (166). MEDICINE-SONG.



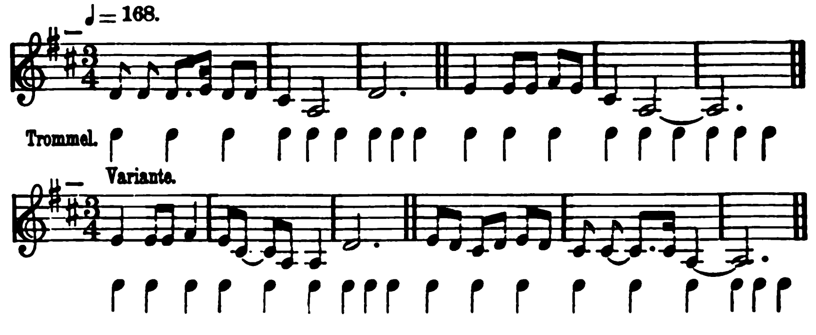
27 (167). MEDICINE-SONG.

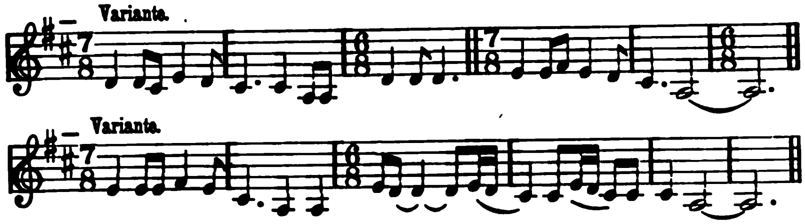

♩= 176.
A1 + + A2 B1 B1
B2 P1 A2 A_1^1
A2 P2 B_1^1
B_1^1 B_2^1 A_1^2 P2
A1 A2 B_1^1 B_1^1 A_1^2 A1 A2 B_1^1 B_1^1
A1 A2 B_1^1 B_1^1 A_1^2 C
A1 A2 B_1^1 B_1^1 B2 A1 C
etc.

28 (168). LYRIC SONG.

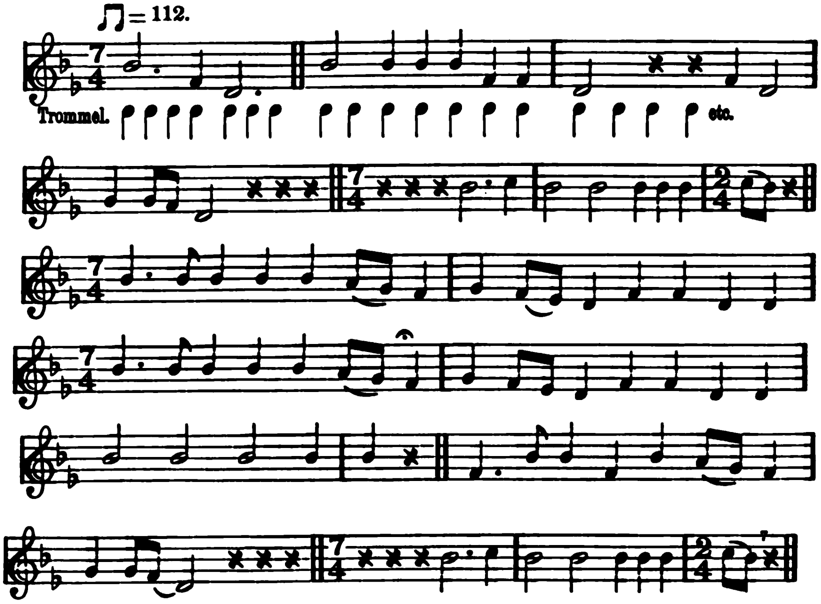


29 (169). LYRIC SONG.

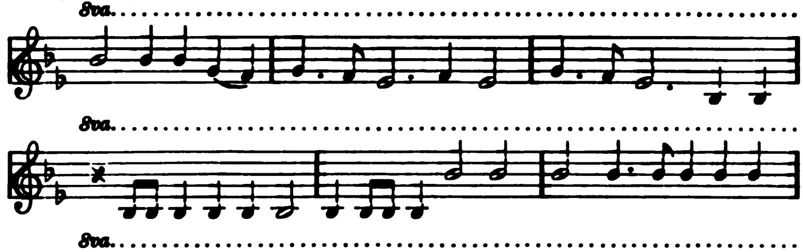




30 (170 a). MEN'S DANCING-SONG.



(170 b).*



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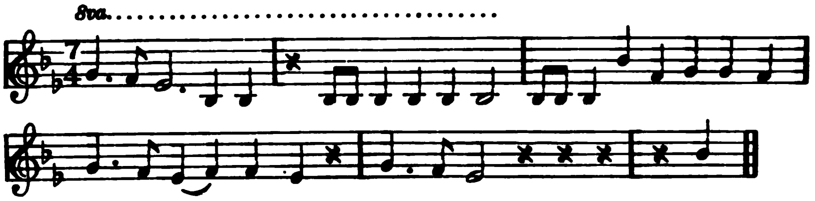
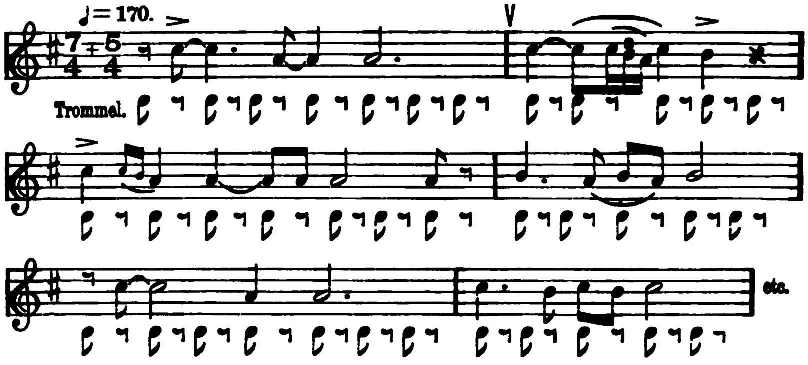
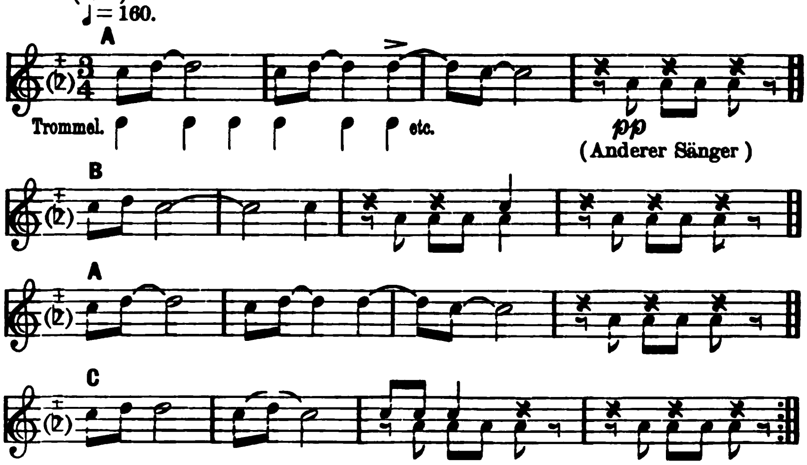
* Man füge die folgenden Taktbezeichnungen hinzu: Erste Reihe, 1. Takt $\frac{6}{4}$, 2. Takt $\frac{8}{4}$, 3. Takt $\frac{7}{4}$; dritte Reihe, 1. Takt $\frac{8}{4}$, 2. Takt $\frac{7}{4}$; fünfte Reihe, letzter Takt $\frac{8}{4}$. Die Octavenlinie ist bis zum Schluss des Liedes zu ergänzen.



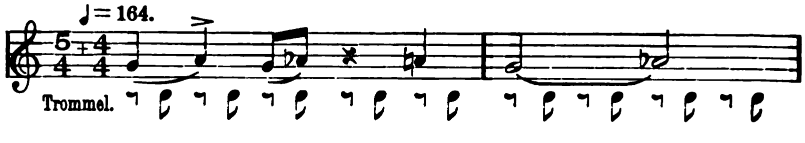
31 (171). DANCING-SONG.

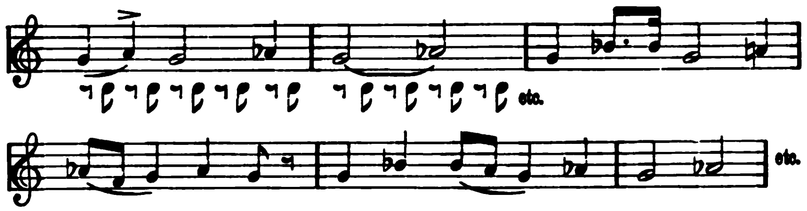


32 (172). DANCING-SONG.



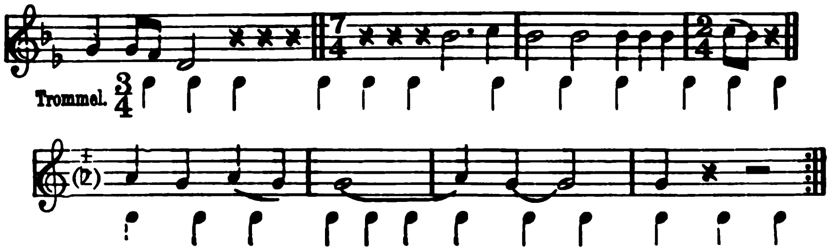
33 (173). DANCING-SONG.





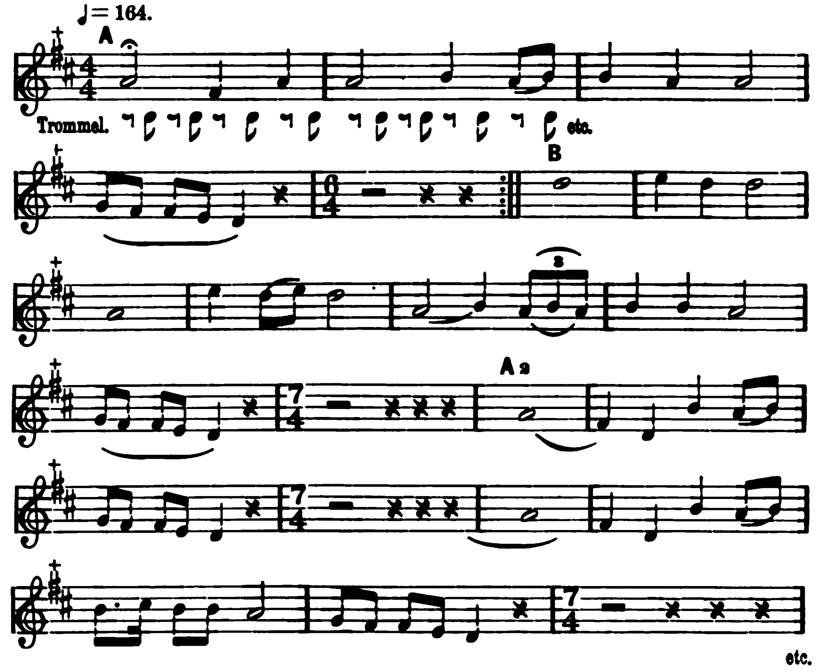
34 (174). DANCING-SONG.

Trommel. ♩= 164.

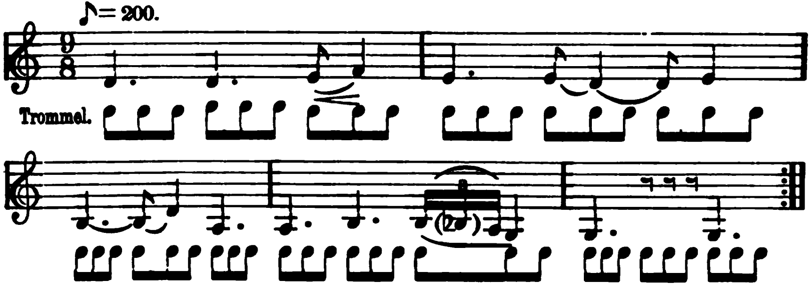


35 (176). LYRIC SONG. Falsett.

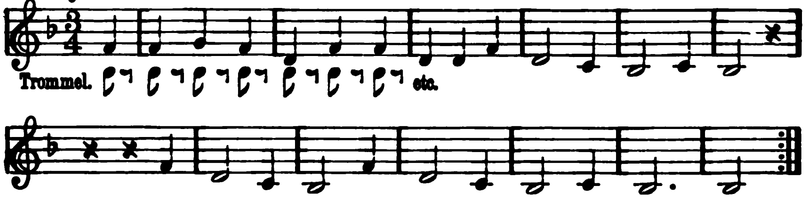
♩= 164.



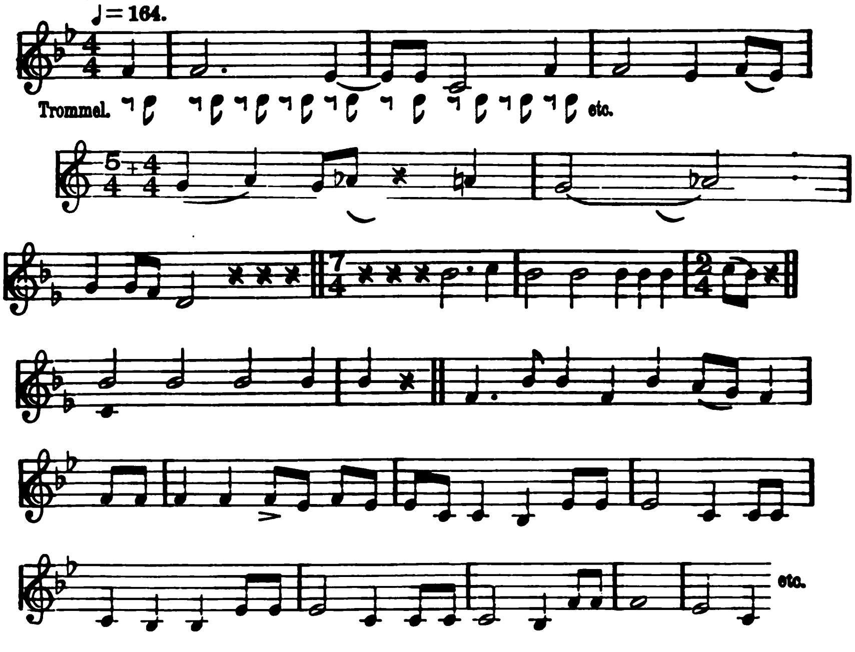
36 (177). RELIGIOUS SONG.



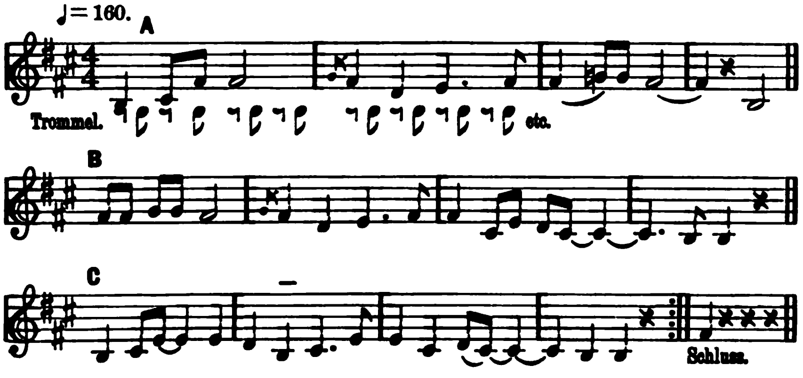
37 (178). RELIGIOUS DANCE.



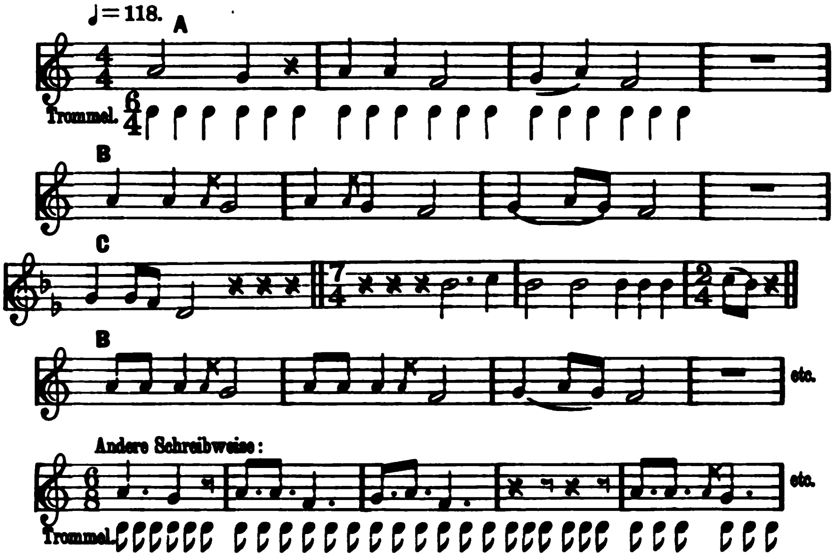
38 (179). DANCING-SONG.



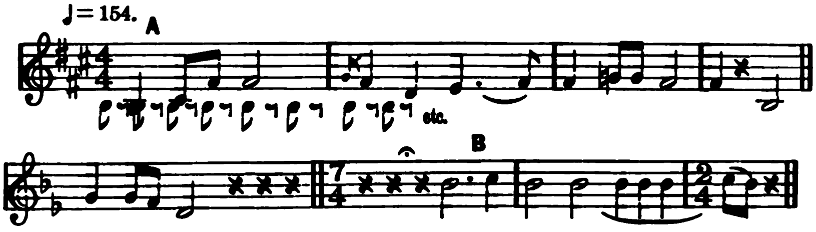
39 (180). LYRIC SONG.

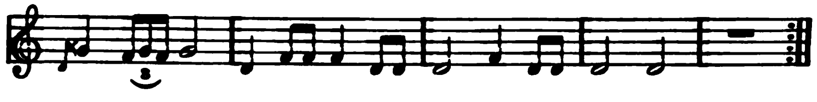


40 (181). LYRIC SONG.

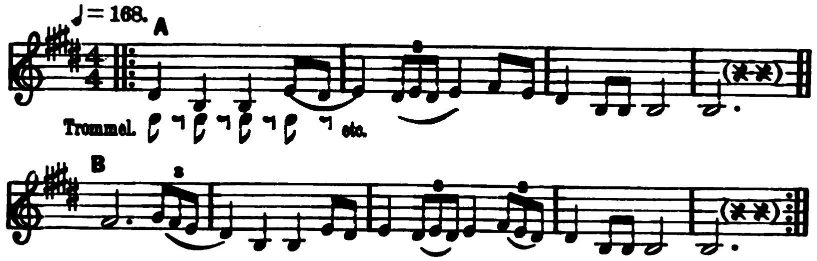


41 (182). LYRIC SONG.

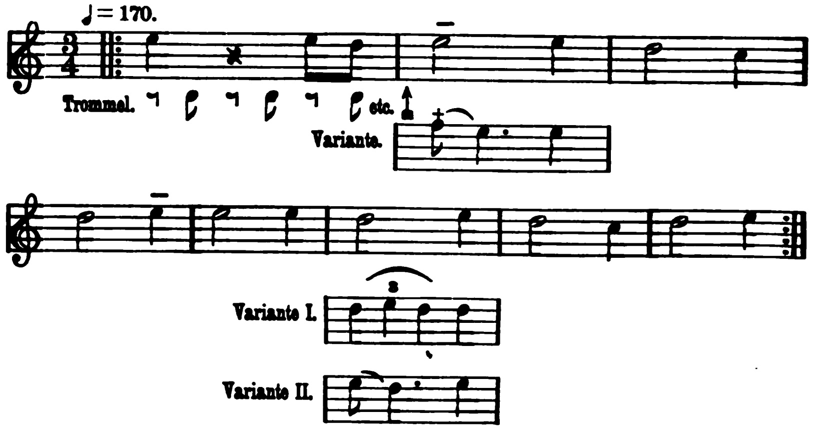




42 (183). LYRIC SONG.



43 (184). DANCING-SONG.



LEITERN.

Erste Reihe (n) = Schwingungszahl; die cursiv gedruckte Zahl melodischer Hauptton.

Zweite Reihe (i) = Intervalle in Cents.

Dritte Reihe (σ) = Summen in Cents, vom Hauptton aus gerechnet.

⁂ Die fortlaufende Numerirung entspricht der der Notenbeispiele.

1.	*496*		588		662						
		294		205							
	0		294		499						
2.	?		*518*		584						
		?		207.5							
3.	*431*		584		642		753				
		526		164		276					
	0		526		690		966				
4.	356.5		374		*469*		627		713		778
		83		392		503		222		151	
	475		392		0		503		725		876
5.	*389*		463		521		581				
		301		204		189					
	0		301		505		694				
6.	251.5		*282*		341		369				
		198		329		136					
	198		0		329		465				
7.	*482*		518		617						
		125		303							
	0		125		428						
8.	*667*		729		842		910				
		154		250		134					
	0		154		404		539				
9.	*366.5*		409		482						
		190		284							
	0		190		474						

10.	?		*366.5*		453				
		?		366					
11.	*472*		530		620		671		748
		201		232		137		188	
	0		201		433		570		758
12.	*554*		630		713		846		
		222		214		296			
	0		222		436		732		
13.	*493*		544		627		671.2		
		170		246		118			
	0		170		416		534		
14.	*478*		572		671		707		
		311		276		90			
	0		311		587		677		
15.	*667*		707		801				
		102		216					
	0		102		318				
16.	*585*		657		788		831		
		292		314		92			
	0		292		606		698		
17.	*566*		626		715		730		
		174		230		36			
	0		274		404		440		
18.	?		*570*		692				
		?		336					
19.	*642*		713		807		842		
		182		214		73			
	0		182		396		469		
20.	566		652		*713*		799		914.5
		245		155		197		234	
	400		155		0		197		431

21.	440		*527*		713		788						
		312		524		173							
	312		0		524		697						
22.	?		*671*		753		822		870		976		1036
		?		200		152		98		199		103	
	?		0		200		352		450		649		752
23.	*496*		557		630		642		723		788		
		201		213		33		206		149			
	0		201		414		447		653		802		
24.	564		*627*		713		838						
		183		222		279							
	183		0		222		501						
25.	*570*		682										
		310											
26.	*463.5*		496		548.5								
		117		186									
	0		117		303								
27.	411		*462*		512		572						
		202		178		192							
	202		0		178		370						
28.	348		*396*		441		521		586				
		224		186		308		184					
	224		0		186		494		678				
29.	*443*		542		579		671		753				
		349		114		255		200					
	0		349		463		718		918				
30.	140.5		197		222.5		*256*		289				
		385		210		243		210					
	838		453		243		0		210				
30.	*263.5*		343		395.5		441		530				
		457		246		188		318					
	0		457		703		891		1209				

31.	*471.5*		533		604								
		212		216									
	0		212		428								
32.	578		*719*		801								
		378		187									
33.	*572*		620		686								
		140		175									
	0		140		315								
34.	*524*		570										
		146											
35.	*304.5*		394		406		456		518		604		696
		446		52		201		220		266		246	
	0		446		498		699		919		1185		1431
36.	*409*		462		506		616		677		732		
		211		158		340		163		135			
	0		211		369		709		872		1007		
37.	*461*		521		588		702		784				
		212		209		306		191					
	0		212		421		727		918				
38.	457		*527*		627		696						
		247		301		180							
	247		0		301		481						
39.	*552*		609		682		756		822		914		
		170		196		178		145		183			
	0		170		366		544		689		872		
40.	*728*		801		920								
		165		240									
	0		165		405								
41.	*353.5*		381		389		451		512				
		130		36		256		220					
	0		130		166		422		642				
42.	*471*		582		642		728		814				
		366		170		218		193					
	0		366		536		754		947				
43.	557		*633*		696		(784)						
		221		164		206							
	221		0		164		(370)						

WHALING IN HUDSON BAY, WITH NOTES ON SOUTHAMPTON ISLAND.[1]

BY CAPTAIN GEORGE COMER.

THE general public are not aware that there are many species of whales, and that out of that great number there are only three kinds that are much sought for.

There is the sperm whale, whose oil is by far the best; and sometimes, in a sick whale, ambergris is found. These whales live in warm water. The right whale is found in both the north and the south temperate zones, and, though its oil is by no means as valuable as that of the sperm whale, still this is compensated for by the value of the whalebone. The third species is known as the bowhead whale. Some of these live in the ice-fields of the far north, but more are known to live in the waters surrounding the south pole. It is this whale that is found in the waters of Hudson Bay.

This whale gets its name from the shape of the head, which has an arch, the head being about a third of the entire length of the body. Nature has provided it with this curve of the head, so that, in coming up from under newly formed ice, the ice can be broken for a breathing-space. Judging from the heads which lie along the shores of the islands in the northern part of Hudson Bay, they must have been very numerous in years past, and the Eskimo must have been very skilful in capturing them, especially those on the Island of Southampton, where no wood for bows and harpoons could be found, except what might have come from wrecks. Here we find man in the stone age.

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[1] [Captain Comer, commander of the schooner "Era," has for many years made frequent whaling voyages to Hudson Bay and Southampton Island, incidentally making ethnological collections and writing down notes on the Eskimo; and this material has been worked up by Professor Boas. These personal reminiscences of one of his voyages will, no doubt, be read with interest by his numerous friends. — EDITOR.]

Whale-ships have been sailing to Hudson Bay for a great many years; and the whalers, when they have come in contact with the Eskimo, have proved to be a benefit to them; and, so far as my experience goes, they have never given them liquor.

Not until recent years have whaling-vessels remained here more than one winter; but now — with better food to ward off scurvy, and because, whales being more scarce, it takes longer to get a cargo — the voyage is generally more successful when the stay is prolonged over a second winter. My last three voyages have been made on this plan. I will give a description of the last one, which began June 30, 1903, and ended Oct. 14, 1905.

We sailed from New Bedford in the topsail schooner "Era," with a crew of twenty men. We had the usual run of fog before getting by St. John's, Newfoundland, where our letters were put on board a fishing-smack bound in. I might say here, that, had we ourselves gone near enough to the mainland, the crew might not have found their way back.

After leaving Newfoundland, we steered north, gradually heaving away from Labrador until nearly opposite Hudson Strait; we then headed well to the westward, and thus avoided the ice coming south along Labrador. We arrived at Resolution Island on July 26, but saw it only for a minute out of the fog. Fortunately there was but little ice, and the run into the strait was uneventful. After rounding the southwest point of Goat's Island, we had the wind strong from the northeast, and at dark had passed Fisher's Straits, and then shaped our course toward Cape Fullerton.

While passing south of Cape Kendall, we ran upon a shoal which makes off from the south shore of the cape. The vessel struck only once, but that was enough to bring me on deck in a moment. When the wheel was put hard up, and the sheets slacked, we gradually worked out into deep water, and then, hauling up again, we ran across to Cape Fullerton, where we arrived at one in the afternoon of Aug. 8. Here we found our natives waiting for the vessel. They had already taken two whales for us.

Next morning began the work of unloading the greater part of our provisions. This was done to lighten the vessel, to give more room in which to work, and to stow away a whale should we get one, and also to put our provisions in a safe place if the vessel should be lost; then we could come with our boats and find food until we had means of rescue.

While unloading, we took in quite a little trade from the natives, and left here on the 17th for Repulse Bay and Lyons Inlet, arriving at Repulse Bay on the 19th. We at once began putting out our boats for Lyons Inlet, starting on the 22d, and working our way with much difficulty to Gore Bay on the west side of Lyons Inlet; but we found it so full of ice that we could not cross, the easterly winds having kept the ice in. We then worked our way back to the schooner, and left Repulse Bay on the 29th for Whale Point, where we spent the rest of the season looking for whales, but without success.

On the 16th of September we went to Cape Fullerton for winter quarters. Here we prepared the vessel for the coming winter, building a house over the after-part; and we cut sufficient ice from one of the ponds to last us until the next summer. This was necessary in order to have water for use. Every day, when it was pleasant, the men went with a sled and brought off a load or more; and in this way we kept a supply on hand for the cook, and also for washing-purposes.

It was during this fall that the Canadian steamer "Neptune," in charge of Commander A. P. Lowe, with a detachment of the Northwest Mounted Police in charge of Major Moody, put into the bay. During the winter the major had a house erected on the island, near the ship, and sent me word that thereafter the place would be a port of entry, and that duty would be collected on all goods to be landed. This duty I paid, and I suffered no further interference in our whaling.

The winter passed very pleasantly. Each Sunday I generally took dinner on the steamer. At Christmas we had quite a grand time, — one which has probably never been equalled in those parts before or since. There were many natives around us, and between the two vessels they were well cared for. Dances were held on each vessel once a week. The native women were very good dancers, and they looked well in their calico gowns. The dance-hall was usually dim with smoke, as the women smoked as well as the men. In this way the winter was made to pass pleasantly and quickly, but one needed some regular work each day.

But there were depressing incidents as well. In a heavy snow-storm one of the men wandered away for a distance of five miles, and walked off the edge of the ice. Later on we discovered his footprints. One of the physicians of the "Neptune" became insane, and had to be cared for by the police. He died in the spring. We also lost one of our crew from illness. This was the first casualty of the kind I had experienced during my ten years as master.

There is something about either the atmosphere or conditions that tends to unsettle the mind, unless great care is taken. The native does not feel this, but civilized man is more sensitive. Here is a problem for the student of anthropology and of civilization.

It is the rule among whalers that the rudder and stern of the vessel shall be cut clear of the ice by the middle of March, so as to allow the vessel to come up out of the ice without injury to the ship, and that the banking shall be taken away also, as well as the ice-cakes that have been placed over the windows.

By the middle of April the whale-boats are brought to the ship from the land, where they have been for safe-keeping, in case the ship should get on fire. For use in such an emergency, a hole is kept open in the ice all winter. The boats are now gotten ready for the spring whaling, except that the painting is omitted until summer, as the weather is now too cold.

If the season is favorable, everything is ready by the first of May. The boats are loaded on sleds. The men take what fur clothes they need, and, with their caribou-skin sleeping-bags, they are ready. Provisions sufficient to last three weeks are taken. Then, with all the natives and dogs, the boats, usually six of them, are dragged to the open water, — here about six miles away, — there to be launched, and pulled to what is thought to be the best place for whales. The natives move their tents and families out near where the boats are to be.

During the summer of 1904 we took only one small whale, while we went cruising with the boats until the middle of September; five whales having been reported as seen during the summer.

During this summer, while we were at the Duke of York Bay, at the north end of Southampton Island, we came upon a party of fourteen natives of the Netchillik tribe. In the early spring of 1903 they had been carried off the shore of the mainland, where they were camped for sealing, by the breaking-up of the ice. One of their party, a girl of about fourteen years of age, had perished while adrift on the ice. The party had succeeded in reaching the Southampton shores, and had managed to live; but what little ammunition they had was soon exhausted. They wished to be taken back; and on our return to the mainland we took them in, and landed them at Gore Bay, whence, after an absence of eighteen months, they could travel back to their own country.

We sailed the schooner up to Repulse Bay, and, after having worked the whole summer in vain, returned to Cape Fullerton to winter. There we anchored on the 16th of September, and found that the "Neptune" had arrived that morning, having returned from a trip up to Lancaster Sound. She remained with us until the 25th of the month, when she started for Port Burwell, there to watch the ice, and gather data as to how late the straits are open for navigation. We got the house built over the vessel, and again cut our supply of ice for the winter.

On the 14th of October we saw a steamer outside, evidently trying to find the entrance. On the 16th she managed to get in, the ice not having been strong enough to prevent her from coming into the inside harbor. She proved to be the "Arctic," which the Canadians bought of the German Government. She was formerly the "Gauss," and was built for polar work in the Antarctic. Major Moody was now in charge, and Captain Bernier master. Later I called upon them, and was well received by Major Moody and his wife. Shortly afterward the major sent over a barrel of apples, a box of oranges, and a bunch of bananas, with a good supply of vegetables, all of which were a great luxury to us. Occasionally our men went out to hunt for rabbits and partridges.

One day our mate did not return at dark, and with some of our crew I went to look for him, but we could not find him. Then, becoming quite alarmed, we organized a searching-party from both vessels, and by eleven in the evening we had become very much worked up, thinking he must have met with some accident. Just then the party found him all right, and quite unconcerned about the trouble he had caused. Then a mental reaction took place, and we all felt provoked that nothing had happened to him. After that it became a law that, if anyone wished to go away from the vessel, he should not go alone.

Dancing was allowed once a week on the vessel, and sometimes there was an afternoon of sports on the ice. Captain Bernier and myself were selected to race for a cup, — the best two out of three, — and the cup became my property. It was on one of these occasions that our ship carpenter broke his leg in a football game, and was thus incapacitated for the rest of the voyage.

Spring came again, and we refitted our boats for whaling along the edge of the ice, all the crew feeling that this was the last season, and that, no matter what came, they were to go home in the autumn.

We got three of the boats away on the 10th of May, having first gotten our ice from the same ponds from which we had procured our supply for the previous winter, and we melted it in the try-works for use on the voyage home. Then — keeping my boat's crew on the vessel till the house had been taken down, the sails all secured in their proper places, and a lot of stone ballast had been stowed away to trim the vessel — we got my boat off by the 20th of May, leaving the vessel in charge of the steward, cook, and carpenter, who was now able to get around on crutches.

For the fitting-out of the boats it takes many articles; and the boats, though large (eighty feet by over six feet), were loaded down, as we had provisions for three weeks. The cover for the boat is made of drilling; and during the first part of spring, up to the middle of June, water will freeze in the boats during the night. At each meal-time, snow is melted for coffee or for drinking, though, when we can get near the land, we can get water off the rocks, and save our kerosene.

Our stoves are small lamps, the blue-flame kind. Formerly we had to use a hoop-iron frame; and to start a fire, it was placed on the ice, and, with either shavings or a bit of hemp-oakum, and slivers of blubber, we got a fire. This method, however, is now obsolete; and our coffee is made in the boats, where we are quite comfortable.

A whale was sighted June 9, but we soon lost it; and at night two of the boats were sent to a place called Yellow Bluff, while I stopped at Whale Point with another boat. That night the wind blew a gale from the northeast, and we had to draw the boats up on the land, as the ice was breaking up fast. In the morning we could see one of the boats coming from Yellow Bluff, towing the other boat. When they reached us, they were all coated with ice, both men and boat. In the night the ice had broken up with them, and they had pushed off to find a better place. The second mate's boat was very badly smashed by the rushing ice-cakes. We gave them dry clothes and hot coffee, and then got to repairing the boat, using grease to put in the cracks, and got her into shape again.

On the 12th of June we again started for Southampton Island, with the wind increasing from the northeast, with snow. We reached there that night, and hauled our boats out on the broken, grounded ice, which at low tide produced an unpleasant feeling, as we feared the ice might roll, or split open.

On the morning of the 13th of June we found that we could not remain where we then were, and, though the weather was bad, we pushed out through the heavy ice, and came to the water. There, with close-reefed sails, we ran before the wind, bound for the southern part of Cape Kendall.

The weather improved, and as we went along we saw the whaling-signal held up from the boat of the second mate to let the others know that a whale had been sighted. Not having seen the whale from our boat, I drew up toward his, intending to ask him where he had seen it; but, before we got near enough to speak, the whale came up near the second mate, who went in at once and harpooned it. All the other boats took in sails, and down masts, and got oars in hand, the whale meantime having gone down. We were all soon ready and waiting for it to come up, which it did close to my boat.

This being the first whale we had taken, I told my men not to be afraid, but to do just as I should tell them, and that everything would be all right. I at once called to them to pull ahead. As the whale was coming toward us, we were soon up to it, the boat being hard against its shoulder. The harpooneer at once drove in the harpoon, then picked up a second to throw. At that instant the whale gave the boat such a blow with its tail, that the man was thrown up in a mass of spray, with the harpoon still in his hand. I called the men to stern with the oars, when up came the monstrous tail again, and smashed in one side of the boat. Then, in a moment more, we received another blow from the other side, smashing that also. By this time the men had lost all their oars. Again the whale caught the boat up on its tail, and held it out of the water; but we slid off right-side up. Still revenge was sweet to the leviathan, and around again came that terrible tail, catching the stern full and square. I was thrown up, and landed in the water on my head. The men remaining in the boat were not in the mood to see the humorous side of the situation, as I had just told them that there was no danger.

When I came to the surface, the first thing I saw was one edge of the whale's tail close to my head. The men said the whale struck the boat twice after I went out. I immediately made for the boat, which was flooding full of water. As I reached up to grab hold of it, away it went, as the whale started off, with no one to cut the line. But, the line becoming clear, the boat stopped again, and I soon got near enough for one of the men to help me in. My first thought was of the harpooneer, and a feeling of horror came over me for fear that he was lost, but that fear was relieved by finding that a boat had picked him up.

The whale had now started off slowly, and, taking a turn of the line around the loggerhead, we followed, and, another boat coming to us, we got in. We lost much whaling-gear and a fine pair of marine glasses given me by Mr. A. P. Lowe of the "Neptune." We went at once to a cake of ice, where I got out and dressed in dry clothes.

The whale was captured by two other boats; and next day we first took the whalebone out of the whale, and then towed it in as far as we could, it being too far from the vessel to save the oil.

It had been my custom, when cruising around, to collect anything of interest for the Museum of Natural History. Among other things I had taken several skulls from graves of the natives. This the natives thought was wrong. After our encounter with the whale, they claimed that the spirits of those whose skulls I had taken had gone into the whale, and punished me, but that, if I did not take any more, it would not happen to me again. It is needless to say that I did not tamper with skulls any more.

We took seven more whales that summer, and had no more accidents. In cruising about with our whale-boats in different parts of the country, I was greatly impressed with the opportunities for study which it offers to the anthropologist and to the zoölogist.

We found game plentiful,—walrus, bear, and seal,—while on the land, caribou were quite numerous, more so in some seasons than in others. Salmon-trout abound in nearly all the lakes and ponds, which are numerous, and fish keep the natives from starvation during the winter.

Whatever may be said for or against the whaling-ships, they have certainly been of great benefit to the Eskimo.

We bade them good-by after having given them all we could spare, and, with promises to come back, we started for home on the 8th of September, and we arrived on the 14th of October. Home again! Home again!

To give one of the strange superstitions and customs found on Southampton Island, I will mention a couple of incidents relating to the people who live there.

Once when meeting them, they told me not to be afraid, as no harm would come to me, but that, had I come a month sooner, one of the men would have been in duty bound to kill me, as he had lost a brother the past year, and, according to custom, he would have had to kill the first arrival during the year following the death. By doing this he would have pleased the departed brother's spirit. This seems to have been a custom among them.

At one time we lost a whale by its sinking, and, there being much ice drifting by, we quite gave it up for lost. That night, when we hauled our boats out on the land, some of my natives wished to go up to the camping-place of the Southampton natives, and get them to practise their angakok art and see what was the cause of the whale acting so badly, and finally getting away.

When my natives returned the next morning, they told me that one of the women had had a séance and had been told while in her trance that I had cut caribou-meat on the salt-water ice, which should have been done on the land. By so doing I had offended the spirit which guards the sea-animals, and she had caused the whale to act badly, and finally get away from us in the ice; but, as I had been good to the people, the woman guardian spirit would hold the whale for me with a turn of the whale-line around her wrist, and I should have the whale later. The whale had at the time the lines of two of the whale-boats.

Two days later we got another whale, and, as the ice began to drift away offshore, we looked around for the lost whale, which we found. It had swollen up to immense proportions. When the lines were hauled in, one of them was evidently wound around some stone on the bottom, and it required the united efforts of two boats' crews to get it clear.

Of course our natives, and, in fact, all the others, believe to this day that it was the woman guardian spirit that had hold of the line, and would not let it go till it was sure we had the whale.

WHALING IN PONDS BAY.

BY CAPTAIN JAMES S. MUTCH.

THE "Albert" left Dundee June 22, 1903. After passing Fair Isle, and remaining two days side of Cape Farewell, we were in the Cape ice. The icebergs were very numerous, and stretches of ice extended many miles from the shore, — too far for us to see Cape Murchison; but in time we got past it. We were well into the Cumberland Gulf, close to the south shore, near Tupik, when we met two boats' crews, walrussing. We spoke to them. When they left, we kept on, and, as the wind seemed to be rising, we went to the farthest place first, Kikkerten; but we did not get through the ice. There it was very heavy pack-ice, and, for fear of having the ship jammed in it, we kept away to Black Lead Island (Umanaqtuaq), and anchored there on the morning of July 25. After we had shipped two boats' crews, and gotten all their beds, tents, dogs, and other baggage aboard, we left, Aug. 2, for Ponds Bay. We had to beat out of the Gulf, and were close to Saunderson's Tower, near Cape Mercy. Then we kept offshore a few miles till we got to Exeter Sound, thence along the shore, but slowly, calms and fog hindering us much. We saw a few bear and walrus, but never many at a time, and got a few. Though there was plenty of ice about nearly all the time, we never saw a whale.

When close to Qivitung or Cape Hooper, a few Eskimo came off; but they had not then seen the whaling-ships, and had little news to tell, except that a few of their own relatives had moved farther south. They named them over, — Kiuktan, Kingudling, Kepignang, Tudjeguaping. Besides these, with their wives and families, a few more were close to Padli. I asked those in the boat to come with me to Ponds Bay; but they were afraid of the Ponds Bay Eskimo, as there were so many murders up there. Only one man in the boat was a stranger to me or to those that were on board from Cumberland Gulf.

I asked each one how many bear-skins he had, and if he would trade them. It was calm and foggy when they left to go on shore to see their wives about the bear-skins, and to come back. We did not wait long, however, as the fog was growing worse, with no appearance of clearing; so we took advantage of a light breeze, that took us away from the land and in the direction we wanted to go. For three days we could just see the hill-peaks in Home Bay, where there were plenty of ice and icebergs and strong currents; but we managed to keep clear of the icebergs.

Cape Kater (Ross's Cape Raper) hove in sight with its icebergs, then the Isabella Bank icebergs, Kater Heads. No whales were seen, and only a few bears. We kept going, thinking there were no Eskimo there in Kater Harbor. They saw us; but they had no boats, which was a good reason for their not coming off. Of this we heard later. When off Cape Aston, we encountered strong head-winds, which kept us tacking off and on. We saw great numbers of ducks in the shallow water all along the lowland, which to me looked much more like places in Scotland than any other place along the coast so far, or in Cumberland Gulf. From Exeter to Cape Kater there are very few low flat places, except one at Cape Hooper, and then again one on Cape Kater, which at that time I only saw at a distance. That flat reached nearly to Clyde River; and on the other side of Clyde River again a long low flat stretched close to the shore, with rocks here and there on it, often looking like Eskimo tents.

Offshore we could see only icebergs and a bear swimming inshore. The bear we got. It was the last one we saw. When close to Eglinton Fiord (Aqbirtijung), the "Diana" (Captain Adams, master) came and took us into the harbor. At one time this was a great whaling-place. Here we were told they had much trouble in getting across Melville Bay, and we afterwards learned that the "Vega" was lost there.

There were only about twelve Eskimo here, — men, women, and children. The previous winter had been a severe one at

Dexterity Harbor, with continuous bad weather, and they had no meat or oil to keep out the cold. The feet of one of the children were badly frost-bitten, so that it had lost one foot entirely, and but a small part of the heel of the other was saved.

We took in water and again started on. There was hardly any wind, however; and, as the "Diana" was going our way, she towed us to Dexterity. Here we saw, not far back from the water, long low land, covered with moss and heather and rocks. The beach was sandy, and there were places where ships had been wrecked, — the "Eagle" and the "Nova Zembla," and the one the harbor is named after, the "Dexterity." Next day the steamship "Eclipse" (Captain Milne) arrived. The captain had seen a whale the day before, and grampuses, not far from Cape Adair (Tugdlirunirn). Next day we arrived near Canto Inlet; but we were in tow of the "Eclipse," as it was calm. We saw the "Balæna" (Captain Guy) here at anchor. She had taken one whale in Melville Bay, and had seen several more there while jammed in among the ice.

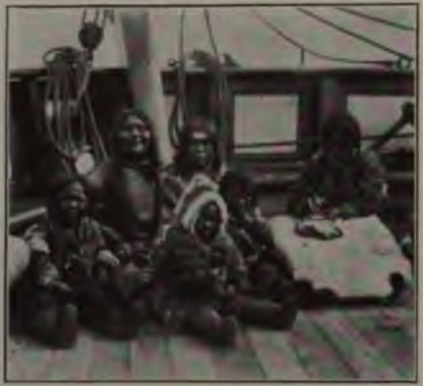
We arrived in Ponds Bay Sept. 6, 1903. Next morning the land was covered with snow. The inlet is large, with a strong current, which makes it unsafe as a harbor, because there are often small icebergs in it that the current moves about; and the rise and fall of the tide help to move them close to the anchorage where the ships are; and so one is often forced either to lift the anchor and shift, or to put out a kedge-anchor and pull the ship into less depth of water, where only very small pieces can come.

As the land was all covered with snow, and it was late in the year, the more so being so far north, we landed all the Eskimo, dogs, furniture, baggage, wood for stations, house-iron, provisions, etc., and prepared to whale. Though we were outside in the bay with the ship for seven or eight nights, and with the boats for quite a number of days, we did not see a whale. On the 24th of October Erik Harbor froze up, and the 29th was the last time that year that we saw the sun above the land. It did not appear again till the 9th of February. From the time the sun left us till the 9th of February we had many hard blows and heavy falls of snow. The wind was mostly outside, but the snow fell inside.

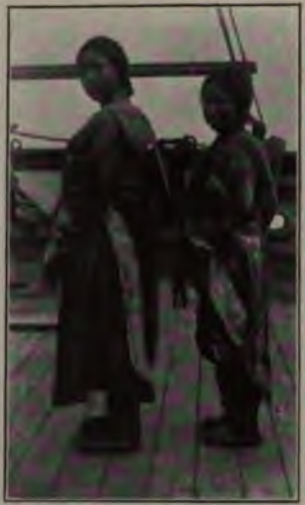
The real Ponds Bay Eskimo had been coming and going all winter, trading a fox-skin when they had one, but always wanting nearly the home value for it or for anything they might bring. They had an idea that seal-skins were worth more than ten times what they were sold for in the London market; and this without any expense, and the skins nearly all destroyed in the flensing. When they left the fat, there was little to pay or trade for; this, however, they could not do, as they required it all for use through the winter. When a bear-skin was brought, though it was small, a telescope or a gun was asked for it. They are much like those who said, "If one never asks, one never gets." They all charged well for their goods, and had been accustomed to getting full value for seal-skins or for any other skins they ever took on board the whalers when they were there.

In looks and features, they compare very well with those farther south (see Plate XXXVII). Their style of dress is the same as far south as Padli, but not farther. Among them are many large, stout, active men, who are perhaps not over-anxious for common manual labor, and have never been much accustomed to pulling oars in boats, and such like; but when the hunting spirit is up, they are there. They are usually dressed in caribou-skin clothing, summer and winter.

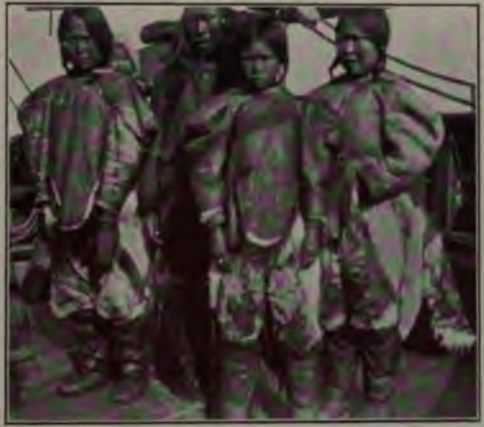
The men's jackets are long back and front, opening well up at the sides. These openings have long, narrow fringes to prevent the heat of the body from escaping too readily, or to keep the wind out. The hood, which fits nearly tight on the head and face, has no peak. The trousers are narrow, and only reach to the knee, often exposing the bare leg at the back, between the stockings and the legs of the trousers and drawers or under-trousers. They have two pairs of stockings. The first pair has the hair on the inside of the feet and legs; the other pair has the hair on the inside of the feet, but on the outside of the legs. They are made of caribou-legs. Seal-skin slippers of shorn skin, the front part bleached white, are made to fit tight over the stockings. A string runs entirely



POND'S BAY FAMILY, ONE CUTTING CARIBOU-SKIN WITH KNIFE.



POND'S BAY WOMEN.



POND'S BAY PEOPLE, EXCEPT ONE NETCHILLIK ON THE LEFT.

around the edge of the skin, that it may be pulled tight when drawn over the stockings, and thus keep out the snow. Mittens made from caribou-legs, with the hair side in, are sometimes worn. The inside shirt is also made of caribou-skin. Caribou-skins are always warmest when new. When old, though in appearance like new ones, they are not nearly as warm.

The women's jackets and shirts are also of caribou-skin. The skins for the shirt are all extra well dressed, but they are not particular about the hair side. They are cut to fit, and are well sewed. Something is sewed around the edges,—usually, if it can be had, red tape about an inch wide, or beads, or tape of any other color, and at times a narrow strip of black or red skin, etc. They are particular to get hair of the dark caribou, and to have the parts match. The back reaches to within nine inches of the ground. The sides only cover the waist. The front extends ten inches below the waist, is narrow at the lower edge, and is rounded off at the corners and also at the back. There is a stripe of white about two inches wide, and one of all black on the edge of it, which are included in the measurement of the length of the back and front. The hood, when on the head, fits tight over the face, close to the cheek-bone; and it rises to a great height, gradually tapering, until at the back it is nearly perpendicular. There is a little fulling at the back, but not much, to make room for the child. It is in the bags across the shoulders, inside the dress, that room is made for the child, which can be put to the breast without taking it out, as they have to do south of Padli. The breast of the dress is all black, also the cape, except for the broad stripe of white with the narrow piece of black on it. They have a cross of white, like the sign of multiplication, which looks like a dog's harness, and white and black on the edges of the sleeves. Their trousers have a good deal of white on the sides of the legs, which reach to the knees, and black or brown more at the back of the legs, and inside. The legs of the trousers are tight, but the hip parts are loose, except when pulled tight with a string at the top around the waist. Boots or stockings are made in two ways. Some have a bag below the knees on the outside. On the inner side the stocking reaches only up to the knees; on the outside it reaches the waist, where they fasten it. It is shaped like a cover for a sore finger in front, leaving the white on the leg of the trousers exposed. The foot of the stocking or boot is covered with shorn seal-skin, but the front part is bleached white; and when they are made to fit, which is usually the case, they are very tight-looking. When they are on, a string around them serves to tighten them and to keep them in place.

The children have a double dress made of caribou-skin, with the hair next the skin, and also outside, including the stockings. They have no slippers or boots. A cap is sometimes attached to the back of the dress, with strings to keep it on. The child gets into the dress at the front, which has strings to fasten it. It is open between the legs for convenience. The mittens are of caribou-skin. Larger children have slippers like those of their mother. When they are about fourteen years of age, they are dressed like their parents.

When a family of Pond's Bay Eskimo — not strangers, but known to nearly every one about — arrive at a village after a long journey, all the men, women, and children will be outside, if the weather is not too bad, wondering and conjecturing who the new-comers may be. As soon as any one makes out who they are, — whether an old friend or a relative, — he invites them to his house. If all is right, — in accordance with the law on either side regarding regulations for the women, — they are treated to the best he has, which he often repents of afterward. Usually they are treated to coffee. As to food, it does not matter to them whether they have raw or cooked meat; but they like to have a drink to begin with, then meat, then another good drink, and so on till they are well filled up. If there is plenty, they stop only when full.

After the man has eaten, he goes out to see about building a snow-house, and looks around for a suitable site. The wife and children remain indoors to get warmed up. If the children are large, one of the same size and sex will take the wife away, and make all right as regards eating and drinking. The pipe will be produced to smoke, which they all do. Perhaps one or two may be found who do not, but this does not often happen.

The man finds a place, that his friend recommends in this wise: "Those up there and over yonder are so-and-so; but here, beside us, we are all friendly. They are all nice, and nice families. They never quarrel, or want to fight, or say nasty things about other people, — no, no. This is the place." And he calls on his own friends to come and lend a hand, which he would seldom do unless for one he really loved or feared.

The house is nearly up, and with plenty of help it is ready in a short time. The porches are made, and some one is asked to tell the stranger's wife to come and get her bedding put inside before they close up the hole at the back of the house where they are putting in the snow blocks with which to build the house (the houses are all built from the inside). When the bedding is all in, that door (if it ever was one) is closed up, and one is made on the side where the window is to be put in.

The men do not ask their wives to do much outside, but some of them help them start away by harnessing the dogs, and seeing that they do not forget anything. And some will go with them to take a hole beside them, — that means the seal-hole that is nearest to the one her husband is to watch, — and often catch their seal. When they have been successful, and have plenty of meat and oil, the fun begins.

The house is well lined inside, and well banked up, fully halfway, leaving only a small part of the dome exposed. The loose snow is often swept off, lest that part should get too warm and melt. The window is made from ground-seal intestines, which are usually dried and prepared during the summer and sewed into a piece a yard square, with a six-inch border of seal-skin, which is pegged into the snow of the house, and then covered with wet snow on the border and on the edge of the house. The porches are intended to keep the wind from blowing the snow into the igloo. Sometimes there are as many as three pouches, and a wind-break placed on the side the wind is blowing from, at the entrance of the outer porch. On the second one a wooden door is placed, when they have one. If they have none, a snow door is made to block the entrance, and keep out the dogs at bed-time. There is a ventilator, which is usually near the centre of the roof, and not far from the window. A piece of snow about a foot square, with a hole through the centre, is placed over a hole cut through the snow of the house, and pressed down around the edges with dry snow to keep it tight. The hole or vent has to be cleaned out twice a day, as it fills up with the steam from the pots. If this were not done, the lamps would not burn, and the house would soon be full of foul air.

The lack of a sufficient number of dogs for so many men has much to do with making the winters hard. Without dogs, they cannot all get to the best hunting-ground, and even at the best ones, I can hardly say that I have seen thus far, nor have I heard of, any good catches of seals. Usually the largest hauls come by chance, as when a hurricane sweeps all the snow from the ice, or clears great spaces from which they can see the seals' breathing-holes. These are generally covered with quite a mound of ice, but it is thin. At quite a distance away, when it is calm, they can hear a seal breathe; and if they are near one hole, and hear a seal breathing at a more distant hole, they slip from hole to hole unobserved by the seal. In this way they may catch as many seals in one day as they ever do in a month the other way, or even in a year sometimes, as one may only get one seal in one month.

The other way, when one has no dogs, is to ask the loan of a relative's or friend's dogs and sledge; or one dog will do to find the seal's hole, which he marks with a block of snow cut out of any snow-bank which is handy. This he sets up on its edge; and if it is clear, he sees the hills, and notes his bearings down a certain hill. Some great rock, most likely, will serve as a guide. Soon he finds another to remind him, when near the place again, to look for the block of snow. And I may add, that after he has been home and returned, caught the seal, covered it up, and gone home again and told his or some other boy to get a sledge and go for the seal, — even then these marks are quite enough for a boy to go by, and find the seal and bring it home.

During the month of May, when the days were long, or it was day all the time, they drove fully twenty-five miles offshore from Shinaroun to get to a good sealing-ground; but this took so far into the next day, that they had to let their dogs rest. At times, when the northwest winds set the ice off the floe-edge, when off on that ground, they had a chance to get a shot at a seal, or anything they saw. As they did not have to hurry home, it mattered little to them whether it was night or day when they slept, and the day-time was usually warmer than what is called night. They had narrow escapes once or twice when they went so far down during the winter, as great pieces set off. Having a kayak there to pick up seals, if they shot any, they were saved; but a few dogs were lost. Those times referred to are counted as narrow escapes. Then they had their losses more than once, as every place where the Eskimo has hunted for a living has its tales of one or more being lost, and of hunger, and of many starving to death.

Usually the first thing to do in getting ready to go hunting is to turn over the sledges and clean off anything that has gotten on them since they were cleaned the day before. Then the shoeíng is inspected. If the blood has been all rubbed off, blood is put on first, then water, which is sometimes mixed with a little salt water; and a piece of bear-skin with long hair is dipped into the water, and drawn along the shoeing of the runner time after time. As it freezes, the ice forms and thickens, till it becomes as thick as they think it will stand. But the usual way is for one, two, or more, to fill their mouths full of water, and then open them sufficiently to let it out in a fine spray. It is best done by forcing it out in a very fine stream till enough has been put on. Then the sledge is turned over, and any icicles that may have formed on the sides of the runners are scraped off.

Then the sledge is turned right-side up, and the bridle is fastened to the sides of the runners, each side of the bridle being put through the holes under the first cross-bar, and toggled close to the outside of the runners. Men, women, and children harness the dogs. Their tug-ring is rove on the bridle-end, which has a hole large enough for the toggle on the other part of the bridle to pass through, and that fastens the dogs to the sledge.[1] The sledge-cover is then put on; and on top of it or underneath it are put the spears and guns. The breathing-hole finders, knives, seal-warp, nose-end straps, pins, needles, and plugs, are usually attached to the seal-warp keeper or clasp. These are at times held in the hand, or fastened to the sledge by the sledge-lashing.

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[1] See **Franz Boas, The Central Eskimo (Sixth Annual Report of the Bureau of Ethnology, Fig. 485, p. 531).**

When all the gear is lashed on, and the whip is ready, the dogs spring up, and the men and children jump on the sledge. Sometimes the women also jump on; but this is very seldom, and only when there is one whom they want to favor with a sledge-ride. They steer clear of the ground-ice; and all stop just far enough from each other's teams to consult as to which way and where they will go, and who is to lead the way to the place they have just arranged to go to. The wind having been considered, and where it suits best, a start is made to the sealing-ground, which by and by is reached. They may not be long in finding the breathing-hole of a seal. If it is all right, the one who found it will keep watch, while those that were following will drive a fair distance away from him. This inclines the seal to go where there is no noise, which may be to the hole that is being watched; while those who are driving about may find another hole, and watch it in the same way. They keep going round and round till they find every hole thereabout. And when one gets tired of watching in vain for a seal to come out, he drives on, as the others did, till he finds another hole. Sometimes those watching have not long to wait.

When he hears a seal blowing at the hole beside him, he prepares his gear. He puts the harpoon on the spear-point. The line which is fastened on the harpoon has a small piece of thong fixed to it, which is drawn through the spear-keeper. When all is ready, he waits till the seal breathes again, and, while it is breathing, he drives the spear down through the snow into the seal's head or its body. If it is not dead, it will try to escape; but when the harpoon is well in, it seldom draws out. The snow and ice above the hole are cleared away with spear, hands, and feet, and often with but little trouble the seal is gotten out on the floe. While it is warm, he puts in a nose-strap, which makes it handy to draw it to his sledge.

If the day is well advanced, those nearest will want their dinner of it. An opening is made. The liver and some flesh are taken out, and a little fat. After this is done, the entrails are put back, and the skin is sewed up. How they wash or clean their hands depends on the temperature of the weather. When it gets dark, they go home. On arriving, the children and some of the idlers are out to see who has been successful. The children run from hut to hut with the news.

The seal is taken into the igloo and cut up, and those most friendly are sent for to come and partake of it. The women at all times get on the bed, and pieces of liver and meat with a little fat are put on a platter. They have their own knives, and sit side by side with the others that have come, and praise the seal for being so nice, sweet, and tender, and the husband for being such a successful hunter, and the hostess for being kindness itself. There they sit and banter one another about how kindly and how often they have been treated. And the same is done among the men. In some cases, only men are invited; in others, men go without invitation; and in a few instances the pot is filled full of meat, and when it is cooked, one of the family will run out and cry "Cooked meat! Come in and eat!" Here that is common.

In other cases, men hunt because they have those they care for, and wish to provide food for them, and oil for their lamps. Others loaf about all day long, amusing themselves; and when they see those who have been off sealing come dragging their seals, and know they are tired, they only stand and exclaim, "How nice it will be to have a grand feast on that which they are dragging!" They wait until it is taken inside the igloo, and then they run in and eat till their mouths are full and they are almost choked, and they only stop when they have no more room.

Another characteristic of these people is their ability to walk or travel for days without food and with little grumbling. I knew one who was asked to help two families home. The distance going and coming was over three hundred miles; and with a fair team, he went with his friend, leaving his wife and a large family to the care of the gods. He was gone eighty-one days, and brought back with him a girl fourteen years of age.

She was the only one not frost-bitten, and able to come. There were heavy falls of snow, and scarcity of food and oil, and the most of Uyo's dogs died. Those he went for had been much reduced for want of food and oil. Their feet were all frost-bitten, which so weakened them that they were unable to help themselves. They are all apparently dead.

They are a happy go-lucky race. It takes many hungry days, and dark ones, to drive out all their fun. They go in for it at all times, often out of place, according to those who lived in Cumberland Gulf and their view of things of that sort. They, too, love fun, but they say, "Keep it in its place. If there are any without food, and who have to hunt, all should hunt, and not allow many to stay at home and play, while others are looking for food for their families, and then come and eat what they have taken." They say, "If a man wants to go off hunting, we don't object; if he wants to stay and play, we are delighted, as we want every one to be happy. So, if any one goes and brings home seals, we only want a share, when they have any to share; and we will do the same."

I was told of one saying to the others one morning, when it was time to get ready to seal, "There were plenty of seals got yesterday. Don't go to-day." He was an exceptionally small man, and one who seldom thought of others. They always spoke of him as a merry little fellow. They say, "When we play, you know we play for fun, and only for fun. No angry faces when you are to be struck, nor when struck, nor when it is your turn to strike. And only strike your opponent as you would wish him to strike you." This game of theirs begins in a place by one shutting his eyes, and running after the sound made by laughter, till he touches some one. The one touched must stop till the toucher gives him a good smart blow on the cheek. The one who was struck now shuts his eyes, and runs till he touches some one, who must do as he did, — stop till he is struck. And so the game goes on for hours.

On the floe-edge. Have had open water for some time, and it is now well into the month of May. About this season one may expect to see narwhals, walrus, ground-seals, seals, and whales. The Station boats are at Shinaroun at this date, and provisioned ready for a start. Should there be an appearance of the water not making too much ice during the day, or should they see a whale, the boats are taken down, as the men are there, and ready at any time. They are only sealing while waiting for a chance to whale.

The Admiralty Inlet Eskimo have not been seen for a few years, and it is not known where they winter. Signs of these Eskimo have been seen year after year not far from the head of the inlet, which runs nearly north and south, and reaches well down to Iglulik; but the nearest place to that shore is Aggo. There are over thirty of them, including children. I got the names of the men and of their wives, and of most of their children. Those signs were the places where they had lived, and from which they had only moved away a day or two at the most. When any one is questioned as to how they manage for ammunition, they reply, "Oh, they never fire at caribou when they are not sure of shooting them, not since that time when it was for want of ammunition and on account of deep snow, that a party all starved to death when returning from their usual summer caribou-hunting." It was a long way south of Admiralty Inlet head, and they left well supplied. A gun and two caribou-skins belonging to one of the party were found nearly a hundred miles from the place where they were when Oewe left them, but no ammunition.

When the Ponds Bay men have been caribou-hunting in Navy Board Inlet, they have not, for years, seen any signs of any one having been on the land there, though those who have gone towards its head have seen sign after sign, year after year. And this is given as the reason why they are thought to live there during the summer; but they cannot conclude where they live during the winter and spring. They drew a chart of that inlet; and when it was shown to those who were born there, they knew every bend in the coast-line; and every place of importance I had marked stood their test. They also report that when the ice broke up in the places they camped at, narwhals were so numerous that they could not sleep for the noise they made breathing "for great spells sometimes."

Navy Board Inlet is spoken of as being one of the good places for caribou-hunting. It may be the caribou can cross the inlet, even when there is no ice. They are found there on both shores, and crossing on the ice during the winter. Quite a number have been shot there recently. At times the hunters meet the bear there, when on their way to Lancaster Sound to look for his friends. At the mouth of Admiralty Inlet, when the floe is good and the floe-edge pleases, they cross to North Devon, Corwallis, North Somerset, and on to Boothia, speaking all the time as if it was done in a short time. In this I have in mind several hunters, and at different times; but this was told me by the man that went farthest, and over all the places named. I looked into his face a number of times, thinking he was young to have been at so many places so far apart; but others told me it was all true. This was the man who saw the big, human-like footprints in Netchillik in Boothia, and Netchillik, inland between Cumberland Gulf and Fox Channel, and again between Kignait and Padli (between Cumberland Sound and Davis Strait). In each tale the big-toe mark was the size of their foot. He saw many musk-oxen on his travels.

Then I met a man and his wife from Iglulik — Amawallie and his wife Akkawaping — on a visit to Ponds Bay. They knew Admiralty Inlet well, described the chart made by others, knew every point and the names as I had them down, and skipped from place to place, and as far west as Prince of Wales Land. The wife told how, while there, she stood with arrow fixed in bowstring, and bow bent, waiting for the best chance to let the string slip when near enough to a musk-ox. She did not mention what her husband was doing, or where he was, or whether she only hunted all the time; but she did say that she was not afraid of musk-ox or bear, or anything, man or woman. Then from Boothia, Iglulik, as far south as Penaklee, to floe-edge, and east to Pilik in Fox Channel, and on to a place they named Shietowyah, where bears are often seen. They spoke of having heard the report of a gun while there. They found plenty of caribou, but it was bears they were after.

Speaking of those people who came from Cumberland Gulf long ago, by way of Iglulik to Ponds Bay, with Cumberland

Gulf people, she found that their language and hers agreed. She spoke also of the differences in the endings of words, and of their thinking that the Kubbeatjew was only in fable, and of the Sicheeoo and Owpeejew tale. I have had their skins, but do not know the English names for them. Akkawaping is a big stout woman about fifty years of age. She has a strong, distinct voice. There is no hesitation in her utterance, nothing shy or bashful, and she cares for no one, whether stranger or not.

Mikkotween and his wife Kunu were at Marble Island in Hudson Bay (Oksorrak). They saw and knew the customs of the people there, as they lived among them for years. They spoke of the tales told of those on Southampton Island, — of their being dirty, indolent, and knowing little about things in general, — and of other matters. The people of Maluksilaq were often mentioned and a few of their ways, and also others farther west. It was told how their cooking-pots were large enough to hold a good-sized caribou, and that their tents had a hole in the roof to let out smoke, etc. They also spoke of another race, among whom, while hunting, if a man should cut himself while cutting up ground-seal, and those there should see the blood coming from him, some one would kill the man, divide his flesh, and lace it up along with the ground-seal meat. Kunu also described another of their customs, viz., should some one come to their camp from a distance with his family, he could get away only with great difficulty, and by some one risking his own life by taking them all to his own house, and keeping them so long that those who desired their lives became tired out with watching lest they should get away.

Kunu told of a great many human bones being at one place near Netchillik (King William Land).[1] There had been a tent at one time close to them, and the wind had blown away all the canvases, except what remained under the stones that held down the tent, still they were the bones of white people. It was there that the women would go to the lakes, and, when splashing water and making merry, one would tell whose husband she had stolen while her own was not at home.

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[1] These were no doubt the remains of members of Sir John Franklin's expedition.

time with Mikkotween and Kunu. Towarnnang had seen and told many things about which I had doubts. Lyon was as familiar to her as if she had seen him. Though she may have made mistakes, the way she told it, he certainly came there after Akalookjo and Omirneto, to whom they also speak of him as if he had visited them a winter or two ago; and of Sedna, too, as if she lived there. She also told of those at Netchillik, about the human bones being those of white people, and of the stones being still there, and of the fringe of canvas to be seen at the edge of the stones, placed as a canvas tent was usually made long ago. Then they had no shame (kangusungitung, " not ashamed ") and no Sedna.

POETIK ALS PSYCHOLOGIE DER DICHTKUNST.

VON RUDOLF LEHMANN,

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WIE die Ästhetik der Romantiker und der Hegel'schen Schule Metaphysik des Schönen sein wollte, so will die heutige Ästhetik Psychologie des Schönen sein. Ihr letztes Ziel ist, die psychologischen Gesetze festzustellen, auf denen unsere ästhetischen Empfindungen und Urteile beruhen. Denn ihre Grundlage bleibt die Erkenntnis, dass diese Urteile und Empfindungen durch die subjective Veranlagung des Menschen bestimmt werden und nicht durch irgend ein objectives oder absolutes Princip der Schönheit; mit anderen Worten, dass ästhetische Eindrücke und Wirkungen in der psychischen Natur des Menschen ihre Erklärung finden. So sind alle Gesetze künstlerischer Wirkung an sich schon Gesetze des Seelenlebens. Sie empfangen von der psychologischen Wissenschaft nur eine umfassendere Formulirung und einen allgemeineren und tieferen Zusammenhang. Die wissenschaftliche Psychologie wird es als eine ihrer nächsten Aufgaben betrachten, die zumeist sehr complicirten Erscheinungen, welche die ästhetischen Vorgänge darbieten, mit den elementaren Functionen des Seelenlebens in eine causale Verbindung zu setzen, jene auf diese zurückzuführen. So wird sie z. B. die künstlerischen Principien des Contrastes und der Steigerung auf allgemeine Eigentümlichkeiten des Bewusstseinsablaufs zurückführen und ihre Bedeutung etwa aus den Erscheinungen der Ermüdung, des Reizzuwachses u. s. w. ableiten. Eben dies ist es, was Fechner von dem Gebiete der bildenden Kunst aus unternommen hat, und in einer Anzahl moderner Arbeiten über Poesie und Litteratur herrscht der gleiche Gesichtspunkt.

Aber noch eine andere Aufgabe ist es, die der inductiven und psychologischen Poetik der Gegenwart vorschwebt und daher auch die heutige Litteraturwissenschaft zu einem grossen

Teil beherrscht. Nicht der Wirkung des Dichtwerks auf die Hörer, sondern seiner Entstehung im Bewusstsein des Dichters will diese Poetik nachgehen. Aus dieser, nicht aus jener will sie die Eigenart der einzelnen Dichtungen wie der Poesie überhaupt verstehen. Ihre Verallgemeinerungen münden nicht in die ästhetischen Categorieen des Schönen, Erhabenen u. s. w., sondern in die rein psychologischen der Phantasietätigkeit überhaupt und der dichterischen Einbildungskraft insbesondere. Den Zusammenhang der productiven Phantasie mit der Gesamtanlage der dichterischen Individualität will sie ergründen. „Die Analysis des schaffenden Vermögens," so drückt es W. Dilthey, einer der führenden Geister in dieser Bewegung, aus, „bildet den Ausgangspunkt für die Untersuchung. Die Einsicht in die Psyche des Dichters und in das Wesen seiner productiven Kraft, der dichterischen Phantasie, ist das Ziel, das die heutige litterarische Forschung, insbesondere die wissenschaftliche Behandlung der neueren Litteratur, so gut wie ausschliesslich im Auge hat."

Dass auch diese Aufgabe vom Standpunkt der modernen Wissenschaft aus, die alles menschliche Geschehen mit einem Netze psychologischer Categorieen und Gesetze zu umspannen strebt, nicht minder berechtigt ist wie jene erste, wird niemand bezweifeln. Sicherlich wird die allgemeine Psychologie für die Erkenntnis derjenigen psychischen Functionen, die wir als Phantasietätigkeit zusammenfassen, sich wesentlichen Gewinn von solchen Untersuchungen versprechen dürfen, und nicht minder bedeutsam muss der Zuwachs sein, den die Individualpsychologie aus der Analysis des dichterischen Vermögens ziehen kann, zumal wenn dieselbe, wie es nicht wohl anders möglich ist, den Zusammenhang dieses Vermögens mit den übrigen specifischen Anlagen, mit dem Ganzen der künstlerischen Individualität, von vorneherein mit berücksichtigt. Und hieraus erhellt denn auch, welchen Wert eine solche Psychologie des Dichtergeistes für die Biographie des einzelnen Dichters wie für die allgemeine Geistesgeschichte zu gewinnen vermag, wie sie beide durch eine Reihe fruchtbarster Gesichtspunkte bereichern und vertiefen kann.

Allein über so glänzenden Fernsichten, die uns die psychologische Poetik eröffnet, dürfen wir doch nicht zu fragen vergessen, wie weit die Wissenschaft der Gegenwart nach ihren Mitteln und Methoden imstande ist, dem hoch gesteckten Ziele nahezukommen. Und da zeigt es sich bald, dass sich ihrem Wege eine Reihe von Schwierigkeiten entgegenstellt, die, wenn nicht als dauernd unüberwindlich, so doch als vorläufig entscheidende Hemmnisse betrachtet werden müssen.

Auf welches Material — so würden wir zunächst doch wohl fragen — kann eine Psychologie der Dichtkunst sich stützen? Welche Mittel stehen ihr zu Gebote, um zu einer inductiven Erkenntnis der dichterischen Einbildungskraft zu gelangen? Die erste Erkenntnisquelle des Psychologen, die unmittelbare Beobachtung, sei es an der eigenen Person, sei es an anderen, versagt hier so gut wie vollständig. Den Dichter selbst bei seiner schöpferischen Tätigkeit zu belauschen, diese Tätigkeit so genau zu verfolgen, dass der innere Vorgang, ich will nicht sagen, lückenlos, aber doch wenigstens in seinen Hauptphasen, klar zu Tage tritt, ist wohl noch niemals einem Beobachter gelungen, am wenigsten einem psychologisch geschulten; nur durch ein unwahrscheinliches Zusammentreffen von Umständen wäre das in einem einzelnen Falle einmal möglich, der dann wissenschaftlich auch noch nicht viel begründen könnte. Und die Selbstbeobachtung kann den, der nicht Dichter ist, über das Wesen des dichterischen Schaffens niemals belehren. Es ist ein eigentümlich schiefer Gedanke Scherers, dass sich aus den gemeinverständlichen Elementen, die im dichterischen Process mit unterlaufen, und die jeder nacherleben kann, Aufschluss über das Wesen des schöpferischen Vorgangs ergeben soll. Denn was wir suchen, ist ja eben das, was der schöpferische Geist allein erlebt und vor jedem anderen voraus hat. Auch gibt das Scherer selbst zu, gerät aber dadurch offenbar in einen Widerspruch: denn eine Erscheinung ist doch noch nicht verstanden, wenn man einige ihrer Factoren kennt, andere aber, und dazu die wesentlicheren, nicht. Das methodische Princip, das in seinem Satze liegt, ist irreführend und hat tatsächlich Verkehrtheiten hervorgerufen.

Es bleibt somit einzig die Möglichkeit, dass der Selbstbeobachter zugleich Dichter ist, oder anders ausgedrückt, ein

Dichter selbst sich oder anderen Rechenschaft über den Vorgang ablegt, durch den seine Werke zustandekommen. Bekanntlich besitzen wir eine Reihe solcher Selbstzeugnisse in Tagebüchern, Briefen und mündlichen Äusserungen, und die moderne Litteraturwissenschaft verfehlt denn auch nicht, ein besonderes Gewicht auf dieselben zu legen, an sich gewiss nicht mit Unrecht, eben weil hier der einzige Zugang zur Lösung des Problems zu liegen scheint. Allein auch hier sind von vornherein erhebliche Einschränkungen und Vorsichtsmassregeln geboten. Kein Dichter beobachtet sich mit der Unparteilichkeit und objectiven Sachlichkeit eines wissenschaftlichen Psychologen, keiner mit dem Interesse an der lückenlosen Vollständigkeit und Verständlichkeit des Vorgangs, die den wissenschaftlichen Methoden allein eigen ist. Ja, mehr als das, selbst die Möglichkeit einer solchen Beobachtung erscheint ausgeschlossen. Die Momente höchster Steigerung der geistigen Kräfte sind immer, daran kann gar kein Zweifel sein, Momente höchster Concentration. Die schöpferische Tätigkeit, welche mehr als jede andere diese Kräfte anspannt und steigert, schliesst mithin jede einigermassen stetige und zusammenhängende Selbstbeobachtung aus, und der Dichter kann über diese Zustände und Erlebnisse nur aus der Erinnerung berichten. Diese Quelle aber erscheint besonders getrübt, weil — darin gerade stimmen die grössten productiven Künstler überein — die dichterische Conception immer einen gewissen Grad von Selbstvergessenheit im Gefolge hat, den höchsten physischen und psychischen Erregungen des Lebens, dem Rausch oder den Sexualaffecten vergleichbar. Selbsttäuschungen sind daher bei solchen nachträglichen Reflexionen in keiner Weise ausgeschlossen. Wir können sie bisweilen mit Händen greifen und ihre Quelle wenigstens hypothetisch nachweisen; aber auch, wo das nicht der Fall ist, werden wir nicht mehr erwarten dürfen als Mitteilungen oder Bemerkungen über einzelne Züge des Vorgangs, die sich etwa dem Dichter als persönlich wichtig aufdrängen. Solche einzelnen Streiflichter indessen, auch wenn sie wesentliches treffen, sind noch keine erschöpfende Beobachtungen, aus denen man den ganzen Vorgang erschliessen und erklären könnte. Versucht man gleichwohl sie zu umfassenderen Zwecken auszunutzen, so gerät man zumeist auf schiefe Bahnen. Gerade einige der am meisten angeführten und benutzten Selbstzeugnisse unterliegen diesen Bedenken.

Erweist sich somit das Material, das der psychologischen Poetik zu Gebote steht, als unzulänglich, so zeigt sich nun auch die Methode selbst, nach der die heutige Wissenschaft versucht hat und allein versuchen konnte, das Problem des dichterischen Schaffens zu erklären, zur Bewältigung dieses Problems nicht zureichend noch geeignet. Diese Methode löst die Dichtung in eine Summe von Bestandteilen auf, die nacheinander in das Bewusstsein des Dichters eingetreten sein und dort in allmählichem oder auch plötzlichem Zusammenschluss das Kunstwerk gebildet haben sollen: persönliche Erlebnisse, Einwirkung litterarischer Vorbilder, Überlieferung der künstlerischen Formen. Hat der Forscher die Summe dieser Bestandteile in der Hand, so glaubt er die Entstehung der Dichtung zu kennen und damit das psychologische Verständnis zu besitzen. Man höre etwa wie BIELSCHOWSKI[1] die Entstehung des Liedes an den Mond beschreibt. „Am 16. Januar 1778, hat sich eine junge Dame aus dem Weimarischen Hofkreise, Christel von Lassberg, in der Ilm, nahe bei Göthes Gartenhause, aus unglücklicher Liebe ertränkt — wie man sagte, mit dem Werther in der Tasche. Göthe war tief ergriffen von diesem Fall und war einige Tage in stiller Trauer um die Scene des Todes beschäftigt. Seine Gedanken halten sein sonst bewegliches, glühendes Herz wie ein Gespenst an den Fluss gebannt. Ein Druck liegt wochenlang auf ihm. Er verstärkt sich, da Frau von Stein sich vor ihm verschliesst. Aber bei Beginn des neuen Monats wendet die Geliebte sich ihm wieder zu, und in ihrem Besitz glücklich, bemerkt er gern seine ‚fortdauernde, reine Entfremdung von den Menschen.' Ein Spaziergang mit ihr im Mondenscheine vollendet diese schöne reine Stimmung, seine Seele fühlt sich endlich wieder ganz befreit von dem Druck und der Spannung der letzten Wochen. Die ersten vier Strophen des Mondliedes in seiner ursprünglichen Gestalt crystallisiren sich. Es vergehen wieder einige Tage. Am 22. Februar besucht ihn Plessing, der sich ‚Menschenhass aus der Fülle der Liebe trank,' und in erbitterter Entfremdung verborgen lebt. Damit sind auch die letzten Strophen gewonnen, die der Dichter an Plessing, an Frau von Stein und an sich selbst gerichtet. Sie lenken zugleich wieder zu Christel von Lassberg zurück, der es nicht vergönnt war, mit einem Manne das Beste des Lebens zu geniessen." Man sieht, die Entstehung des Gedichts erscheint in dieser (übrigens völlig hypothetischen) Schilderung als ein rein associativer Process und die Phantasie des Dichters als ein passives Medium, durch das die Erlebnisse hindurch gehen, um künstlerische Form zu gewinnen. Dem entsprechend wäre die Dichtung selbst ein wesentlich associatives Gebilde, in dem sich innere und äussere Erlebnisse und Überlieferungen mancher Art aneinander reihen. Tatsächlich gibt es nun auch Gedichte, auf die diese Bestimmung passt. Abgesehen von manchen Producten der modernen Lyrik ist Wanderers Sturmlied ein Muster dieser Gattung. Göthe selbst bezeichnet es als Halbunsinn und beschreibt seine Entstehung folgendermassen: „Unterwegs sang ich mir seltsame Hymnen und Dithyramben, wovon noch eine unter dem Titel ‚Wanderers Sturmlied' übrig ist. Ich sang diesen Halbunsinn leidenschaftlich vor mich hin, da mich ein schreckliches Wetter unterwegs traf, dem ich entgegengehen musste." [1] Aber gerade dieses Gedicht, und das Urteil des Dichters darüber zeigt deutlich, wie weit der Abstand zwischen einer Improvisation solcher Art und einem wirklichen Kunstwerk ist. Denn ein solches ist, wie schon der Name sagt, stets das Werk des Könnens und des Wollens. Jede Dichtung setzt so gut wie jedes Gemälde, jede Bildhauerarbeit, eine schöpferische Tätigkeit voraus, an der Wille und Kraftanspannung keinen geringeren Anteil haben als die Associationen, durch welche die Phantasie befruchtet wird. Ein gelegentlicher Einfall, ein kleines lyrisches oder auch episches Gedicht, das unmittelbar den Eindruck widerspiegelt, dem es seine Entstehung verdankt, ist wohl ohne eine solche Tätigkeit denkbar und kann gleichwohl bei einem genialen Dichter bisweilen eine hohe Vollendung zeigen, wie das bei einigen Gedichten Göthes, z. B. den Nachtliedern des Wanderers und des Jägers, bereits im ersten Entwurf der Fall ist. Jede grössere Dichtung aber, die einen weiteren Zusammenhang von Empfindungen und Gedanken zum Ausdruck bringt, ist ihrer Entstehung wie ihrem Wesen nach viel zu verwickelt als dass eine so einfache Erklärungsweise nicht unzulänglich, ja naiv erscheinen sollte.

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[1] Göthes Leben, Vol. II, p. 374.

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[1] Dichtung und Wahrheit, III, 71.

Jede genetische Erklärung eines solchen Dichtwerks wird zunächst zwischen der Conception und der Ausführung als den beiden wesentlichen Phasen des dichterischen Processes zu scheiden haben. Die Conception ist ein Moment seliger Empfängnis, so wenigstens schildern sie fast übereinstimmend die Dichter selbst. Der Gedanke dessen, was werden soll, steht plötzlich wie ein fertiges Bild vor dem entzückten Blick des Künstlers. Dieser Gedanke nun aber erscheint ihm nicht als ein lockeres associatives Gebilde, sondern als eine durchaus einheitliche Gesamtanschauung, in welcher er das Ganze des Werks, das in seiner Seele entsteht, intuitiv erblickt und überschaut. Hiermit aber verbindet sich nun sogleich die bestimmte künstlerische Absicht, den Gegenstand dieser Intuition objectiv darzustellen: der Dichter will das, was ihm lebendig oder anschaulich vor der Seele steht, anderen gleich anschaulich und lebendig machen. Hierzu bedarf er der Form und der Ausdruckmittel seiner Kunst. Diese Absicht bildet das gestaltende Princip der Dichtung im Ganzen und in den Einzelheiten, und eben diese Gestaltung ist es, die wir künstlerische oder bildende Tätigkeit nennen. Wenn also die erste Conception als ein passives Geschehen in der Seele des Dichters erscheinen kann, so liegt in der Ausführung derselben stets ein actives Moment. Ist die Conception nichts als ein Vorgang in der Phantasie, so beruht die Ausführung auf einer planvollen Tätigkeit, in der Willensacte und associative Vorgänge beständig ineinander greifen; zahllose Willensacte, die doch durch eine einheitliche Zwecksetzung regirt, Associationen, die eben hierdurch wie an unsichtbaren Fäden gelenkt werden. Das künstlerische Schaffen ist eine Arbeit, die, wie wir aus zahlreichen, in diesem Punkte gewiss vollgültigen Zeugnissen wissen, vom Künstler als Mühe, bisweilen als Pein empfunden wird, sehr im Gegensatz zu dem stillen Behagen der träumenden Phantasie oder der gewaltig erregenden Wollust der ersten Conception. Diese gestaltende Tätigkeit also empfängt Sinn und Zweck nur durch die Rücksicht auf ein Publicum, sei es dass ein ganzes Volk, sei es dass ein einzelner Hörer, ein Freund, die Geliebte, dem Dichter als ein solches vorschwebt. Eine seltsame, ja paradoxe Tatsache! Die Dichtung und ihre Form wachsen organisch aus der Conception hervor, und doch ist dies Wachstum nicht zu verstehen, ja nicht einmal zu denken, ohne den natürlichen Drang des Dichters, sein inneres Schauen und Hören anderen zugänglich zu machen. Die Charaktere, die er schafft, leben ihr eigenes Leben, aber sie zeigen nur so viel davon, als es nötig ist, um dieses Leben Zuschauern zum Verständnis zu bringen. Die Verse, die er formt, scheinen ganz in sich selbst zu ruhen, und doch sind sie für die Stimme des Sängers, des Vorlesers geschaffen, der sie anderen zu Gehör bringen soll. Dieser ganze Process nun aber ist so wenig durchsichtig, so vielfältig verwickelt, dass die heutige Psychologie mit den Mitteln, die ihr zu Gebote stehen, nicht daran denken kann, ihn auf ein einfaches Schema zurückzuführen und auf diese Weise verständlich zu machen. Und am wenigsten reichen die associativen Processe aus, die der schaffenden Tätigkeit vorhergehen und den Stoff für sie bilden, um die productive Tätigkeit selbst zu erklären, so wenig man auf dem Gebiete des Willenslebens überhaupt mit der Zurückführung auf Associationsprocesse durchkommt, was nur eine rationalistisch einseitige Psychologie für erreichbar hält. Ohne Willenstätigkeit ist eine schöpferische Phantasie ebenso wenig denkbar, wie der schöpferische Wille eines grossen Staatsmanns oder Feldherrn ohne Phantasie denkbar ist. Alle Versuche also, der Psychologie des dichterischen Schaffens durch die Untersuchung der dichterischen Associationen und ihrer Entstehung beizukommen, bleiben notgedrungen einseitig und an der Aussenfläche. Alle noch so geistvollen und scharfsinnigen Betrachtungen oder Untersuchungen über die Verwandtschaft der Dichterphantasie mit Traum und Wahnsinn liefern nur Analogieen, die den Kern der verglichenen Vorgänge nicht erreichen; denn der schöpferisch gestaltende Wille des Dichters hat weder im

Traum noch im Wahnsinn seines Gleichen. Gewiss, auch solche Untersuchungen haben innerhalb ihrer Schranken wissenschaftlichen Wert: sie lehren uns Associationsmöglichkeiten und Phantasiefunctionen kennen. Aber zu einer wissenschaftlichen Einsicht in die Psychologie des dichterischen Schaffens wird man niemals gelangen können, so lange man genötigt ist, die Willenstätigkeit und die Complicationen, die sich hieraus ergeben, auszuschalten.

Was nun aber den Einblick in den dichterischen Process ganz besonders erschwert, ja entscheidend zu verhindern scheint, ist die sonderbare Verflechtung von bewussten und unbewussten Vorgängen, aus denen er sich zusammensetzt, oder genauer gesagt, die zahllosen Abstufungen der Bewusstseinsklarheit, in denen er sich vollzieht. Schon inbezug auf die Entlehnungen und Übernahme, mit denen die heutige Litteraturgeschichte so gerne operirt, macht sich das geltend. Jeder Dichter, auch der selbständigste, übernimmt von Vorgängern Motive, Formen, Ideen. Aber es macht für den Charakter seiner Productionsweise noch mehr als für ihren Wert einen erheblichen Unterschied, ob er mit bewusster Absicht wiederbringt, was schon einmal da war, oder ob er es unbewusst aus der Fülle dessen, was er aus den verschiedensten Quellen des Lebens und der Dichtung in sich aufgenommen hat, noch einmal hervorbringt. Unbewusste Reminiscenzen, namentlich wenn sie vereinzelt auftreten, sind höchstens als Symptome von Bedeutung; an sich besagen sie gar wenig; denn wir alle, Dichter wie Laien, leben und denken beständig in solchen. Bewusste Entlehnungen wiederum können ebenso wohl aus überlegener Meisterschaft wie aus schülerhafter Abhängigkeit hervorgehen. Lessing entlehnte quantitativ kaum weniger als seine stümperhaften Vorgänger und gleichwohl war er der erste originelle deutsche Dramatiker. Die vergleichende Litteraturgeschichte der Gegenwart verfährt in diesem Punkte viel zu gleichförmig. Sie zählt Entlehnungen über Entlehnungen, Anklänge über Anklänge auf, und wenn man etwa die Analyse der Schiller'schen Jugenddramen in den meisten modernen Biographieen liest, so ist man versucht zu fragen, was ihnen denn eigentlich den Ruf der Originalität verschafft habe.

Aber freilich, wie sollte man es auch anders anfangen? Die Grenze zwischen Bewusstem und Unbewusstem ist schon hier oft schwer zu finden, oft überhaupt nicht festzustellen.

Dunkler und noch unentwirrbarer ist das Ineinandergreifen bewusster und unbewusster Zustände und Vorgänge in dem rein innerlichen Verlauf des dichterischen Schaffens. Die Conception selbst erscheint als ein Moment der höchsten Klarheit, — aber woher sie kommt, was sie herbeiführt, ist in den meisten Fällen in gänzliches Dunkel gehüllt. Und die Dichter selbst betonen immer wieder das Plötzliche und ihnen selbst Unbegreifliche des Vorgangs. Die Fäden, die das Seelenleben des Dichters mit der Aussenwelt verbinden, schiessen plötzlich zusammen; ein Eindruck löst sie aus. Wie das geschieht, warum gerade dieser und nicht ein nächst verwandter, — wer vermöchte das zu sagen! Daher spricht Göthe so gern von seinem *nachtwandlerischen* Dichten; und in den bekannten Versen Schiller's heisst es:

> „Wie in den Lüften der Sturmwind saust,
> Man weiss nicht, von wannen er kommt und braust,
> Wie der Quell aus verborgenen Tiefen:
> So des Sängers Lied aus dem Innern schallt."

Das ist auch ein Selbstzeugnis und noch dazu eines stark reflectirenden Dichters; und man wird ihm wohl glauben müssen.

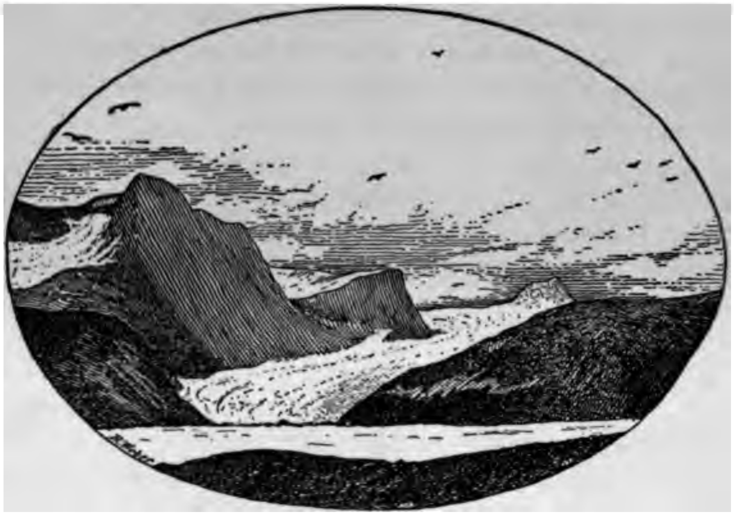
Was den Ursprung der Conception charakterisirt, das zeigt sich nicht minder charakteristisch in der künstlerischen Arbeit, die ihrer Verwirklichung dient. Diese Arbeit scheint zwar eine völlig verstandesmässige zu sein. Sie beruht auf einer fortgesetzten Auswahl des Zweckdienlichen; aus einer Reihe von Möglichkeiten, die ihm seine Phantasie und seine Darstellungsmittel gewähren, greift der Dichter diejenigen heraus, die geeignet sind, seine Intention in anschauliche Wirklichkeit umzusetzen. Danach wählt er Worte, Stimmungen und Situationen; und die Rücksicht auf das Publicum, auf die beabsichtigte Wirkung ist, wie wir schon oben sahen, stets mitbestimmend, nicht selten ausschlaggebend für die Auswahl. Aber das ist nun das Wunderbare: diese sichtende und suchende Verstandestätigkeit kommt dem Dichter zum grossen Teil gar

Franz Boas.

nicht zum Bewusstsein; zumal die Rücksicht auf das Publicum bleibt bei dem echten Künstler zumeist ganz unterhalb der Schwelle. Kurz, das rätselhafte Phänomen einer *unbewussten Auswahl* ist das eigentliche Wesen der künstlerischen Arbeit. Allerdings tritt uns hier ein unverkennbarer Unterschied zwischen den Dichterindividualitäten entgegen. Schon Aristoteles unterschied zwischen dem ἐνθουσιαστικός und dem ἔυνοος ποιητής; ein Dichter müsse entweder aus leidenschaftlicher Begeisterung oder aus einem überlegenen Künstlerverstand heraus schaffen; und wir brauchen nur etwa den Götz des jungen Göthe neben Lessings Emilia Galotti zu stellen, um zu sehen, was er meint, und dass er Recht hat. Doch der Unterschied ist nur relativ. Auch der junge Göthe sichtete, wie uns die Entstehungsgeschichte des Götz zeigt, wenn nicht vor, so doch nach der ersten Niederschrift. Er verwirft eine Reihe von Scenen, nicht weil sie unwahr oder schlecht gemacht sind, sondern weil sie die beabsichtigte Gesamtwirkung beeinträchtigen. Und wenn anderseits der belesene und besonnene Lessing zwischen den Erfindungsmöglichkeiten, die vor ihm liegen, Reminiscenzen, die er verwerten kann, geistvollen Apperçus, die den Dialog beleben, auswählt, so sind es doch nicht einzelne Erfahrungen oder Berechnungen, welche die Wahl entscheiden, sondern das *Gefühl* für das Wirksame und Wahre. Kein Dichter rechnet mit allen Möglichkeiten, die ihm zu Gebote stehen. Er ergreift eine, und sie erscheint ihm und uns als künstlerische Notwendigkeit. Die Sicherheit, mit der er zugreift, ist eben das, was wir *künstlerischen Instinct,* wo sie hochgesteigert erscheint, geniale Anlage nennen. In der Tat, es ist ein *Instinct,* ganz analog dem Triebe, der die Biene oder den Vogel leitet, ihr Material auszuwählen und daraus ihren kunstvollen Bau auszuführen. Weiss nun aber die heutige Psychologie schon jene verhältnismässig einfachen und völlig regelmässig verlaufenden instinctiven Tätigkeiten nicht zu erklären, wie will sie die unendlich verwickelteren, durch individuelle Abweichungen, auf Schritt und Tritt weiter complicirten Äusserungen des künstlerischen Instincts bewältigen? Unter diesen möge nur auf einen hingewiesen werden, dem freilich eine besondere Bedeutung zukommt. Die dichterische Schaffensgabe hängt zweifellos auf das engste zusammen mit den sprachbildenden Kräften der menschlichen Seele, die eben in grossen und selbständigen Dichtern auf das höchste gesteigert erscheint. Diese Kräfte nun, die man früher durch allgemeine Speculationen ableiten und erklären zu können glaubte, liegen für die heutige Psychologie zu einem grossen Teil im Dunkeln. Vor allem ist der Anteil, den der Einzelne an der Bildung und Entwicklung der Sprache hat, wie bei fast allen collectiven Tätigkeiten des menschlichen Geistes psychologisch noch völlig unaufgeklärt. Wir vermögen nicht einmal festzustellen, worauf der einzigartige Reiz so einfacher Wortgebilde, wie sie etwa die beiden Nachtlieder des Wanderers darstellen, beruht, geschweige denn in irgend einer Weise zu erklären, was es ist, das den genialen Dichter befähigt, gerade solche Worte und Wendungen zu treffen, die uns, ohne dass wir uns Rechenschaft geben warum, bis ins tiefste rühren? Also auch hier eine Frage, bei deren Lösung die psychologische Erklärung einstweilen völlig versagt.

Das ist natürlich genug. Denn alle Methoden, welche die moderne Psychologie bisher entwickelt hat, laufen auf eine analytische Betrachtungsweise heraus, welche die Zustände und Abläufe des Bewusstseins nach dem Vorbild der Physik in hypothetische und abstracte Elementarbestandteile zerlegt und durch eine Hülfsconstruction dieser Art auf bestimmte Schemata und Gesetze zu bringen sucht. Diese Methoden haben für das Gebiet der Sinneswahrnehmungen und etwa für die einfachsten Arten des Vorstellungsablaufs gewisse Ergebnisse gehabt, aber sie sind weit entfernt davon geblieben, die complicirten Erscheinungen des Seelenlebens, wo die verschiedensten Äusserungen und Tätigkeiten des Bewusstseins, wo Empfindung und Denken, Gefühl und Wille ineinander greifen, zu erhellen: ja, im richtigen Bewusstsein ihrer Grenzen hat die Psychologie bis jetzt nicht einmal ernstlich versucht, sich dieser Erscheinungen zu bemächtigen. Nun aber ist von allen Gebieten des Seelenlebens das des künstlerischen Schaffens vielleicht das schwierigste und verwickeltste. Wie will man glauben, es mit den kärglichen Mitteln, welche die Psychologie bisher der litterarischen und ästhetischen Betrachtung geliefert hat, bewältigen zu können? Die psychologische Poetik muss, in dem Entwicklungsstadium, in dem sie sich heute befindet, an der Aufgabe scheitern, das dichterische Schaffen zu erklären, es auf Gesetze und Typen zurückzuführen.

Das Problem selbst freilich und damit die Aufgabe seiner Lösung bleiben bestehen; spätere Geschlechter, die mit tiefer eindringenden Methoden und reicheren Mitteln arbeiten, werden sie vielleicht der Lösung näher führen. Für eine solche Zukunft vermag die litteraturgeschichtliche und biographische Forschung der Psychologie dankenswerte Vorarbeiten leisten, wie sie ihrerseits von der psychologischen Fragestellung Anregungen und Gesichtspunkte empfängt. Aber es kann nur auf Abwege und zu Irrtümern führen, wenn sie wähnt, mit ihren heutigen Mitteln mehr als die Oberfläche des dunklen psychologischen Vorgangs erleuchten zu können.



Boas Glacier

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NOTE.—The BOAS GLACIER in Baffin Land, named in honor of Professor Boas by Mr. Russell W. Porter on a visit to Frobisher Bay, was described in 1898 in Bulletin American Geographical Society (XXX, 108, 109, 110, map opp. 97, 2 ill.). The illustration on p. 514 is reproduced from that journal.

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II. Subject-Index.

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Africa, 60–63, 271.
Alaska, collections from, 100, 104.
  Eskimo of, 171, 233.
Album of the North Pacific Coasts of America and Asia, 240.
Anthropology, general, 59, 132, 158, 170, 200, 225, 228, 231, 247, 256, 257, 260, 273, 275, 292.
Archæology, 248, 255.
Arctic exploration, 12, 32, 33, 34, 38, 68.
  journeyings, 15–22, 25, 27–30, 40, 41, 46.
Art. See Decorative art.
Asia, Eastern, 265.

Baffin Land, 22, 35, 39, 41, 42, 44, 89, 93, 112, 165, 250, 298.
Bella Coola, ethnology of, 49, 153.
  language of, 45, 48.
  mythology of, 216.
Bessel, Friedrich Wilhelm, 4.
Brinton, Daniel Garrison, 230.

BRITISH COLUMBIA, ethnology of, 47, 54, 72, 81, 86, 101, 102, 107, 127, 128, 141, 152, 153, 173, 174, 179, 181, 182, 189, 197, 220, 223, 288, 289, 297, 302.
BRONZE FIGURINE from British Columbia, 248.

CALIFORNIA, Mission Indians of, 185.
  anthropometry of central, 284.
CANADA, ethnological problems in, 301.
  explorations in, in 1886, 94.
  Indian languages of, 286.
CARVINGS of Northwest coast, 50.
ÇATLOLTQ, myths of, 117.
ĆAT'S CRADLE, game of, 110, 121.
CHEMAKUM language, notes on, 154.
CHILDREN, growth of, 147, 156, 176–178, 197, 204, 218, 235.
CHILKAT, blanket designs of, 299.
CHINOOK, doctrine of souls and disease among, 160.
  jargon, 140, 155.
  language, 159.
  songs, 105.
  texts, 172.
  vocabulary, 269.
CLUBS of bone of whale, from Washington and British Columbia, 297.
CULTURE of Northwest America, development of, 109, 290.
  traits of primitive, 273.
CUMBERLAND SOUND, 14, 18, 21, 23, 24, 31, 37, 77, 120, 165.

DECORATIVE ART, of the Chilkat, 299.
  of the Huichol, 276.
  of North American Indians, 267.
  of North Pacific coast, 193, 205, 215.
  of the Thompson Indians, 241.

ESKIMO, 76, 82, 85, 88, 92, 287.
  Alaskan, 171, 233.
  and Indian, 83.
  of Baffin Land and Hudson Bay, 35, 39, 42, 112, 250, 262, 298.
  Central, 51, 114, 243.
  Cumberland Sound, 14, 24, 25, 28, 37, 165.
  early distribution of, in arctic America, 12.
  harpoon, 67.
  language of, 165.

ESKIMO, mythology of, 42, 43, 112, 130, 163, 206, 270.
  Neitchillik, 13.
  religion of, 26, 51, 243.
  texts, 130.
  tribal division of, 88.

FACIAL PAINTINGS of Indians of northern British Columbia, 215.
FRASER RIVER tribes, ethnology of Lower, 173.

GEOGRAPHY, 1, 2, 21, 29, 36, 38, 41, 44, 52, 53, 55, 60, 61, 63, 68, 70, 71, 74, 75, 77, 89, 93, 94, 116, 119, 120, 142.

HAIDA, ethnology of, 127, 291.
  social organization of, 221.
  tattooing of, 123, 127.
  vocabulary of, 150.
HEAD, deformation of, in British Columbia, 126.
  form of, as influenced by growth, 192.
  heredity in form of, 266.
HOUSES, of Kwakiutl, 115.
  of Tsimshian and Nîsk·a', 197.
HUDSON BAY, 29, 36, 250, 262, 298.

ICE, and icebergs, 55.
  condition of, in Baffin Land, 89.
  sea-water, formation and dissipation of, 70.
INDIAN, Eskimo and, 83.
  half-blood, the, 169.
  myths, 182.
  population, 224.

JESUP NORTH PACIFIC EXPEDITION, 207, 212, 214, 238, 240, 244, 251, 268, 280, 291.

KATHLAMET texts, 246.
KOOTENAY, traditions of, 149.
KUTONAQA, 127.
KWAKIUTL, census and reservations, of 73.
  ethnology of, 141, 197, 302.
  houses of, 115.
  language of, 141, 197, 242.
  mythology of, 111, 182.
  secret societies and social organization of, 195, 210, 290.

KWAKIUTL, songs and dances of, 103, 196.
  texts, 282, 295.
  vocabulary of, 157.

LANGUAGES, distribution of Indian, in British Columbia, 186, 222.
  See PHILOLOGY.
LILLOOET Indians, types of, 240.
LKU'ÑGEN, 141.

MASKS on northwest coast of America, 47, 134.
METEOROLOGICAL observations in Cumberland Sound, 120.
MIND of primitive man, 247.
MUSEUMS of ethnology, 59, 64, 79, 133.
MUSIC of some North American tribes, 56, 103, 105, 168.
MYTHOLOGY, of Bella Coola, 216.
  of Catloltq, 117.
  of Eskimo, 42, 43, 112, 130, 163, 206, 270.
  of Indians of Washington and Oregon, 162.
  of Kootenay, 149.
  of Kwakiutl, 111, 182.
  of Navaho, 208.
  of Northwest coast tribes, 118, 182.
  of Tillamook, 213.
  of Tlingit, 87.
  of Ts'ᴇts'ā'ut, 201.
MYTHOLOGIES of the Indians, 187, 281.

NEGRO, 271, 283, 293.
NÎSK·A', ethnology of, 181.
  houses of, 197.
  linguistic notes on, 181, 197.
NOOTKA, 141.
NORTHWEST COAST tribes, 54, 86, 289.
  art of, 193, 205.
  carvings of, 50.
  classification of languages of, 167.
  guide to collections from, in American Museum of Natural History, 239.
  journey to, 152.
  mythology of, 118, 182.
  physical characteristics of, 144, 153, 181.

ORIENTAL SCHOOL, 263.

PETROGLYPH of Vancouver Island, 148.
PHILOLOGY, 129, 150, 154, 155, 157, 159, 165, 167, 172, 175, 181, 186, 196, 197, 222, 242, 252, 282, 286, 292, 295, 296, 300.
PHYSICAL ANTHROPOLOGY, 122, 126, 135–137, 144, 145, 147, 153, 156, 158, 161, 164, 166, 169, 176–178, 180, 181, 183–185, 191, 192, 197, 203, 204, 211, 218, 220, 226, 229, 234, 235, 249, 253, 254, 266, 277, 279, 284, 285, 294.
PONKA grammar, 300.
PROPERTY MARKS of Alaskan Eskimo, 233.
PSYCHOLOGY, 5–10, 99.

RACE, human faculty as determined by, 170.
RACES, mixed, 145.

SALISH, 288.
SALISHAN TEXTS, 175.
SERPENT among Northwest American Indians, 66.
SHOSHONEAN tribes, anthropometry of, 234.
SHUSWAP, 141, 240.
SKULL, horizontal plane of, 279.
  relations between length-breadth and length-height index of, 183.
  from Yucatan, 135.
SKULLS from British Columbia, 122, 136.
SNANAIMUQ, 131.
STANLEY, 108.

TATTOOING of Haida, 123.
THOMPSON RIVER Indians, art of, 241.
  ethnology of, 241.
  rock painting of, 199.
  traditions of, 217.
  types of, 240.
TILLAMOOK, traditions of, 213.
TINNEH of Nicola Valley, ethnology and linguistics of, 181.
  of Washington, vocabulary of, 181.
TLINGIT, ethnology of, 127.
  mythology of, 87.
  vocabulary of, 150.
TS'ETS'Ā'UT, ethnology and linguistics of, 181.
  traditions of, 201.

TSIMSHIAN, ethnology of, 113, 127.
  houses of, 197.
  language of, 227.
  texts, 252.
  vocabulary of, 150.

VANCOUVER ISLAND, ethnology of, 47, 86, 117, 148, 151, 302.
VIRCHOW, Rudolf, 258, 259.

YUCATAN, cranium from, 135.

INDEX.

Abraham, O., and v. Hornbostel, E. M., Phonographirte Indianermelodieen aus British Columbia, 447–474.

Achoma'wi, pronouns in, 82.

Admiralty Inlet, Eskimo of, 497, 498.

Æsthetics, as psychology of the beautiful, 501.

Africa, pygmies of, 32; Jews of northern, 55–63.

Agriculture, of Indo-Europeans before their separation, 381.

Ährenkind, 389.

Ai, King of Wei, tomb of, opened, 219.

Aimará, dances of, 272 et seq.; costume of, 275; ancient religious organization of, 275; shamans of, 275 et seq.

Ainu, wheeled bird as toy of, 410; inau cult of, 425 et seq.; characteristics of religion of, 425. See also Inau.

Airich, Gaelic term for shoulder-blade divination, 162.

Algonquin syllabary, 88 et seq.

Alloys, used in Chinese mirrors, 217–219.

Alpine type, 384, 386.

Ammon, O., 30, 36.

Andamans, 32.

Andree, R., Scapulimantia, 143–165.

Andrews, Miss H. A., Bibliography of Franz Boas, 515–545.

Animals, the twelve Chinese, 239–240.

Antlers, among Cherokee, 362, 363.

Anthropological, archæological, and philological results, combination of, in elucidating Indo-European question, 382.

Anthropological conception of history, 374.

Anuchin, 36.

Apache, 39.

Archæological research, vast neglected field for, in the Plateau Region, 367–372.

Aristoteles, 511.

Arrow-heads, Chinese, alloys for, 218; of obsidian, among Tahltan, 343.

Art. See Decorative Art and Ornaments.

Artemisia leaves, used for ignition by means of reflector in ancient China, 226.

Aryans, discussion of term, 377.

Aspiration, as characteristic of Bosnian dialect of Olovo, 399.

Aston, W. G., 432.

Astronomy, in ancient Mexico, 290 et seq. See also Star-lore.

Atavism, 44.

Athapascan stock, 340.

Atkinson, R. W., 212.

Atsugĕ'wi, pronouns in, 83.

Australia, social organization of tribes of, 167.

Axes and hatchets, Chinese, alloys for, 218.

Ayrton, W. E., 212.

Bactrian patera, showing bear of the form of the knobs on some Chinese grape-mirrors, 238.

Ball-games, forgotten by Kekchi, 283.

Bandelier, A. F., La danse des "Sicuri," des Indiens Aymará de la Bolivie, 272–282.

Bashkir, 260.

Bastian, A., 150.

Batchelor, J., 430, 431.

INDEX.

ABRAHAM, O., and v. HORNBOSTEL, E. M., Phonographirte Indianermelodieen aus British Columbia, 447–474.
ACHOMA'WI, pronouns in, 82.
ADMIRALTY INLET, Eskimo of, 497, 498.
ÆSTHETICS, as psychology of the beautiful, 501.
AFRICA, pygmies of, 32; Jews of northern, 55–63.
AGRICULTURE, of Indo-Europeans before their separation, 381.
ÄHRENKIND, 389.
AI, King of Weï, tomb of, opened, 219.
AIMARÁ, dances of, 272 et seq.; costume of, 275; ancient religious organization of, 275; shamans of, 275 et seq.
AINU, wheeled bird as toy of, 410; inau cult of, 425 et seq.; characteristics of religion of, 425. See also INAU.
AIRICH, Gaelic term for shoulder-blade divination, 162.
ALGONQUIN syllabary, 88 et seq.
ALLOYS, used in Chinese mirrors, 217–219.
ALPINE type, 384, 386.
AMMON, O., 30, 36.
ANDAMANS, 32.
ANDREE, R., Scapulimantia, 143–165.
ANDREWS, Miss H. A., Bibliography of Franz Boas, 515–545.
ANIMALS, the twelve Chinese, 239–240.
ANTARES, among Cherokee, 362, 363.
ANTHROPOLOGICAL, archæological, and philological results, combination of, in elucidating Indo-European question, 382.
ANTHROPOLOGICAL conception of history, 374.
ANUCHIN, 36.
APACHE, 39.
ARCHÆOLOGICAL research, vast neglected field for, in the Plateau Region, 367–372.
ARISTOTELES, 511.
ARROW-HEADS, Chinese, alloys for, 218; of obsidian, among Tahltan, 343.
ART. See DECORATIVE ART and ORNAMENTS.
ARTEMISIA LEAVES, used for ignition by means of reflector in ancient China, 226.
ARYANS, discussion of term, 377.
ASPIRATION, as characteristic of Bosnian dialect of Olovo, 399.
ASTON, W. G., 432.
ASTRONOMY, in ancient Mexico, 290 et seq. See also STAR-LORE.
ATAVISM, 44.
ATHAPASCAN stock, 340.
ATKINSON, R. W., 212.
ATSUGĒ'WI, pronouns in, 83.
AUSTRALIA, social organization of tribes of, 167.
AXES and hatchets, Chinese, alloys for, 218.
AYRTON, W. E., 212.

BACTRIAN patera, showing bear of the form of the knobs on some Chinese grape-mirrors, 238.
BALL-GAMES, forgotten by Kekchi, 283.
BANDELIER, A. F., La danse des "Sicuri," des Indiens Aymará de la Bolivie, 272–282.
BASHKIR, 260.
BASTIAN, A., 150.
BATCHELOR, J., 430, 431.

Bead-work, of Tahltan, 341, 343.

Bear, conception of, among Ainu, 426.

Bear festival of Ainu and Gilyak, 436, 437.

Bear Lake Indians, 340.

Beauty among American Indians, 38 et seq.

Bedding, of Tahltan, 342.

Beech, names for, in Indogermanic, 379.

Bell, ancient Chinese, with 36 nipples, 251.

Bells and urns, Chinese, alloys for, 218.

Bertholon, 62, 63.

Bertin, A., 212.

Bielschowski, 505.

Bischoff, Th. v., 444.

Blonde type of Indo-Europeans, 378, 383.

Blonds, persistency of, 29; among North African Jews, 56, 62.

Boas, Franz, 36, 37, 85 note, 108 note, 163, 166 note, 173, 176, 179, 190 note, 193, 194, 257, 298, 387, 447, 475 note, 493; bibliography of, 515 et seq.

Bodleian Codex, 293, 294, 295, 298.

Boeheim, W., 306.

Bogoras, W., 151.

Bolivia, Aymará of, 272 et seq.; exploration of Indians of, recommended, 282.

Bologna Codex, 291.

Bonito, Pueblo, torso of human figure of, 325–326.

Borgian Codex, 291.

Bowditch, H. P., 16, 26

Bows and arrows, of Tahltan, 343.

Brain, investigations of, in medical sections, 443 et seq.; drawings of surfaces of, 445.

Breton, Miss Adele, 300.

Brewster, D., 211.

Brigham, W. T., 205.

Broca, P., 28, 36, 446.

Bronzes, Chinese, how named by native writers, 241, note 3.

Brunettes, persistency of, 29.

Bücher, 441.

Burgt, van der, 37.

Burial, among Tahltan, 348.

Burton, R. F., 152, 153, 155.

Bushell, S. W., 209, 212, 220, 223, 411, 419.

Calabash, derivation of word, 198; economic utilization of, 199.

Calabash-vessels, method of making, in Izalco, 202–204.

Caldron, of Mecklenburg, 383.

California, morphological groups of linguistic families of, 64; Yokuts and Yuki languages of, 64.

Californian languages, central group of, 64; pronominal dual in, 80 et seq.

Camerer, W., 15, 16, 26.

Campen, 439.

Canoe, of bark, Canadian Yukon type, 345; of moose-hide, 345.

Card-playing, among Tahltan, 347.

Caribou-hunting, on Navy Board Inlet, 498.

Carriages, ceremonial, in China, 415.

Carrying, of water-jars on head, 39.

Casca tribe, 339, 340, 347, 348, 349.

Catoptrical illuminator in China, 228, 231.

Celtic race, 28.

Chamberlain, A. F., Terms for the Body, its Parts, Organs, etc., in the Language of the Kootenay Indians of Southeastern British Columbia, 94–107.

Chamberlain, H. S., 376.

Champion, P., 211.

Chang Ch'ang, 230.

Chang-K'ien, 235–236.

Chantre, E., 422.

Chariot-vessels, in China, 420; in Europe, 421 et seq.

Charms, Chinese mirrors used as, 230.

Charts, of Eskimo, 497, 498.

Chau Ju-Kua, 216.

Chavannes, Éd., 214, 242, 249, 252, 414.

Cheese, among Yakut, 259.

Cherokee, star-lore of, 354 et seq.

Chiao li, Chinese drug, 3.

Child, type of beautiful Indian, 39.

Chile, calabash-vessels in, 207.

Ch'ī-meī, goblins infesting desert of Tarim Basin, 230.

Chinese art and general culture, foreign influences on, preceding the Chang-K'ien period, 236–238.

Chippewa, social organization of, 168.

Chisel, of stone, ceremonial, from northwestern America, 335–336.

Chou dynasty, mirrors during, 212, 235; art of, different from that of subsequent periods, 236; regulations regarding fire during, 227.

Chou-li, unmistakable mention of mirrors in, 214; on bronze alloys, 217; ceremonies in fire-making, 227; mirror inscriptions quoted from, 234; (cited) 415.

Chou Mi, 244.

Chung-ting-i-k'i-k'uan-shi, 242.

Churning, process of, among Yakut, 261.

Churning-bag, of Yakut, 261.

Clans, of Tahltan and Tlingit, 348.

Clark, 167.

Clercq, de, 440.

Clouds, represented in the shape of "fungus" ornaments in China, 241.

Cocopa, 39.

Colignon, 63.

Color-ornaments, among North-Americans, 182.

Comer, Captain G., Whaling in Hudson Bay, with Notes on Southampton Island, 475–484.

Comets and meteors, among Cherokee, 366.

Confucius, early history of China made one-sided and incomplete by his editing, 236–237.

Conrady, A., 410 note, 423.

Convergences, of muscle-variations, 45.

Copper, superior quality of, from Tanyang, 218.

Cora, 39.

Cornevin, C., 20, 26.

Correlations, of muscle-variations, 43 et seq.; positive and negative, 46.

Cortez, Ferdinand, 308.

Costa Rica, use of calabash in, 201.

Costume, of Tahltan, 342.

Couvreur, S., 413, 415.

Cree characters, 93.

Crescentia, calabash-tree, 197.

Culin, S., 414.

Cumberland Gulf, 498; language of Eskimo of, 499.

Cunningham, D. J., 444.

Cushing, Frank Hamilton, 358.

Cymric race, 28.

Czekanowski, J., Zur Frage der Correlationen der Muskelvarietäten, 43–54.

Dances, of Aymará, 272 et seq.; of Kekchi, 285 et seq. See English.

Darbishire, R. W., 212.

Dawson, 95, 96.

Decorative Art, in North America, 179 et seq. See also Ornaments.

Deer, extension of their range farther north in British Columbia, 343.

Dehesa, D. T., 303.

Deniker, 59.

Dice-game, of Kekchi, 284.

Dilthey, W., 502.

Divergences, of muscle-variations, 45.

Divination, from shoulder-blade, 143 et seq. See Scapulimantia.

Dixon, R. B., The Pronominal Dual in the Languages of California, 80–84.

Dobrotvorski, M. M., 431.

Dog-sleds, of Tahltan, 346; of Eskimo, 493–494.

Domenech, 360.

Donaldson, H. H., A Comparison of the White Rat with Man in respect to the Growth of the Entire Body, 5–26.

Doolittle, J., 230, 231, 232.

Dorsey, G. A., A Pawnee Ritual of Instruction, 350–353.

Dorsey, 369, 389.

Dove, Chinese engraving of, 410; represented in chariots, 412; terms for,

413 note; represented in staves, 419; in book-weights, 420.
Dove-vases, of China, 416 et seq.
Dragon ornament, 241, 242.
Dramatic performances, of Kekchi, 285 et seq.
Drayton, Michael, 161.
Dshingis-Chan, 146.
Dubosq, J., 212.
Dunn, Elizabeth Hopkins, 5, 6, 7, 23, 24, 25.
Duran, 298.

Ecuador, calabash-vessels of, 207.
Eel, importance of, for definition of home of Indo-Europeans, 380.
Egypt, wheeled birds of, 410.
Eitel, 413 note.
Eliot, missionary, 93.
English song-games, difference between, and American, 404–405; dances, 407.
Equinoxes, knowledge of, among ancient Mexicans, 298.
Erkert, 63.
Erman, 156.
Ernst, 300.
Eskimo, capturing whales, 475; costume of, of Ponds Bay, 488–490; tobacco-smoking, 490; house-building, 491; women assisting in harnessing dogs and catching seal, 491; seal-catching, 492, 494; dogs, 492; sledges, 493–494; seal-meat, 495; travelling, 495; amusements and games, 496.
Exogamy, tendency to, in North America, 174 et seq.
Export trade, of ancient China, represented by counter-gifts to tribute missions, 222.

Falconry, 397, 402.
Fang-yü-shöng-lan, 216.
Fechner, 501.
Fehling, H., 16, 26.
Fejervary, 291.
Fewkes, J. W., 321, 322, 327, 333, 447.
Fillmore, J. C., 452.
Fire, mode of producing, under Chou dynasty, 227.
Fishberg, M., North African Jews, 55–63.
Fish-dam, of Tahltan, 344.
Fishing, methods of, among Tahltan, 344 et seq.
Fish-trap, of Tahltan, 345.
Föng Yün-p'öng and Yün-yüan, brothers, 210, 246, 249.
Forest-spirits, 389.
Fox Indians, 88; legend of, in their writing, with interlinear version, 92.
Franklin, Sir John, remains of members of expedition of, 499, 500.
Frequency of muscle-variations, 45, 48.
Fungus, as symbol of long life in China, 241.
Fürst, 30, 37.

Gabb, W., 201.
Games, of Kekchi, 283; of Tahltan, 347; of Eskimo, 496.
Geerts, A. J. C., 211.
Georgi, 150.
Giles, H. A., 413, 414 note.
Gilman, 447.
Gilyak, religious notions of, 425–426.
Giraffe, growth of, 20.
Giraldus Cambrensis, 161.
Giuffrida-Ruggeri, 31, 36, 37.
Gnomon, used by Mexican sun-priests, 298.
Gobineau, 375.
Goddard, P. E., A Graphic Method of Recording Songs, 137–142.
Gomme, A. B., 404, 405, 408.
Göthe, 505, 506, 507, 510, 511.
Govi, M., 212.
Gregorovius, 160.
Grgjić-Bjelokosić, L., 158.
Grimm, 160.
Groot, de, 439.
Growth, relation of the sexes, 18.
Growth-curve, form of, as a mammalian character, 19.
Grube, W., Die Huldigungsfeier der Acht Genien für den Gott des langen

Lebens, Ein chinesischer Schattenspieltext, 1–4.
Gruber, 44.
Guatemala, calabash-vessels from, 204.
Guimet, Musée, mirrors of, 241–252.
Guinea-pig, growth of, 21.
Guldberg, G., 37.
Guslar song, text, 390–394; translation, 394–398.

Habel, 301.
Hagar, S., Cherokee Star-Lore, 354–366.
Hahn, E., 145.
Hai-ma, term of doubtful meaning, 238.
Halberds and lances, Chinese, alloys for, 218.
Hale, 96, 168.
Haliburton, R. G., 354, 360.
Hampel, J., 422.
Han dynasty, oldest specimens of mirrors dating from, 213, 235; mirrors with handles in use during, 223; metal works during, 234; Western and Eastern, 235; style of art in mirrors of, 236–237.
Han-fei-tzĭ, 226.
Han-shi, 227.
Hare, in China, 228, 239.
Harley, 356.
Hartman, C. V., Die Baum-Kalebasse im tropischen Amerika, ein Beitrag zur Ethnobotanik, 196–207.
Hartman, 62.
Hawaii, decorated gourds from, 205.
Hawara, in Egypt, wheeled birds of, 410.
Haxthausen, 154, 155, 161.
Headland, I. T., 424 note.
Heger, F., Verschwundene altmexikanische Kostbarkeiten des XVI. Jahrhunderts, nach urkundlichen Nachrichten, 306–315.
Hehn, V., 381.
Height, bodily, as racial characteristic, 27 et seq.; constancy of, 28; transitional forms of, 31; variability of, 32; scheme of, 33. See also Tall.
Hellenistic influences, in Chinese grape-mirrors, 236, 237, 238.
Hensen, 20, 26.
Herberstein, 156.
Herrera, 281.
Heterogeny, of species, 47.
Heye, G. G., Ceremonial Stone Chisel from Northwestern America, 335–336.
Highley, S., 212.
Hirt, Hermann, 377, 379, 380, 381, 383, 384, 386.
Hirth, F., Chinese Metallic Mirrors, with Notes on some Ancient Specimens of the Musée Guimet, 208–256.
Ho Mŏng-ch'un, 244.
Hobby-horses, in China, 414.
Hochstetter, F. v., 310.
Holmes, W. H., Decorative Art of the Aborigines of Northern America, 179–188.
Hopi Katcinas, 321, 324, 334.
Hornbostel, E. M. v., see Abraham.
Hörnes, M., 422.
Horse, among the Turks, 258; breeding and economy of, among Yakut, 259; Yakut legend regarding origin of, 262; of Indo-Europeans, 381.
Horse-flesh, food of Yakut, 259, 262.
Horse-shoes, 402.
Horse's hoof, as Yakut ornament, 261, 269.
Houses, of Tahltan, 341.
Hrdlička, A., Beauty among the American Indians, 38–42.
Hsi ch'ing ku chien, facsimile edition of Japan, 416.
Huaĭ-nan-tzĭ, 226.
Huang-ti, the Emperor, supposed to have invented bronze mirrors, 212; ancient mirrors ascribed to, 230.
Huichol Indians, jicares of, 206; head-plumes of, 316–319.
Hui-tsung, the Emperor, collection of bronzes of, 208.
Hungary, Bosnian names for, 401.

Huns, influence of, on Chinese art, 237; alluded to in mirror inscriptions, 248.

Hunt, George, The Rival Chiefs, a Kwakiutl Story recorded by, 108–136.

Hupa song, 140–142.

I-yüan, 233.

Ice, pieces of, used in China in lieu of convex lenses, 226.

Iglulik, Eskimo of 498.

Inau, of Ainu, 425 et seq.; various types of, 427 et seq.; represent human figures, 428; individual and group inau, 429; shavings, their most essential characteristic, 429; their social importance, 430; inau and gohei, 432; as speakers, messengers, and mediators, 434; shavings, the orator's tongues, 435.

India, legends regarding mirrors in, 229, 234.

Indians, American, beauty among, 38 et seq.; social organization of, 170 et seq.

Indo-Germanic languages, 373 et seq.

Inlaying, in art of North Americans, 184.

Inscriptions, on Chinese mirrors, 234, 242, 246–247, 248–249.

Ixtilxochitl, Mexican historian, 298.

Izalco, Indian village in Salvador, principal place for manufacture of calabash vessels, 202.

Jade, mirrors of, 216; bird-chariot of, 414; wheel of, 415.

Jagor, F., 212, 243.

Janèr, Florencis Don, 211.

Japan, Chinese mirrors sent to, in third century A.D., 221.

Japanese, eager collectors of Chinese curios, 220; trade with Ts'üan-chou-fu, 220; raids on China coast during Ming period, 221.

Jesup Expedition, 163, 257, 258, 538, 539.

Jews, North African, 55–63.

Jochelson, W., Kumiss Festivals of the Yakut and the Decoration of Kumiss Vessels, 257–271.

Jochelson, W., 151.

Jones, J., collection of, 335.

Jones, William, An Algonquin Syllabary, 88–93.

Julien, St., 211, 243.

Kamui, gods of Ainu, 426 et seq.

Kau-tsu, the Han Emperor, 232.

Kekchi Indians, games of, 283 et seq.

Kekchi, text and translation of dramatic pantomime, 286–289.

Kiang Yen, 216.

Kickapoo, 88.

K'ien-lung, the Emperor, collection of metallic mirrors of, 209; had inscription made for ancient mirror, 213, 230.

Kin-shï-so, 210.

King William Land, 499.

Kingsborough, 291.

Kirnbaby, 389.

Knight, Payne, 360.

Knob, perforated, appearing both on Chinese and Scythian mirrors, 222–223; entering medical prescriptions, 232; ornamental features of, 237; in shape of animal (bear or lion), 238; as centre of water-chestnut blossom, 245; surrounded by nipples, 250; in the shape of a mamma, 251.

Ko-chï-king-yüan, 210.

Koeze, G. A., 35, 37.

Ko Hung, alchemist, 229.

Kollman, J., Die Bewertung einzelner Körperhöhen als rassenanatomische Merkmale, 27–37.

Kootenay, terms of body in language of, 94 et seq.

Körösi, 56.

Kossinna, G., 377, 381.

Krasheninnikof, 430.

Krauss, F. S., Eine Vila mit sechs Flügeln, ein bosnisch Guslarenlied, 387–403.

Krauss, F. S., 159.

Kroeber, A. L., The Yokuts and Yuki Languages, 64–79.
Kroeber, A. L., 84, 356.
Ku-kin-chu, 226.
Ku-king-ki, 211.
Ku Tʻai, archæologist, 219.
Ku-yü-tʻu-pʻu, 217, 414, 416.
Kuan-tzī, 216.
Kʻui-sin-tsa-shi, 244.
Kumiss, known in remotest antiquity, 260; preparation of, by Yakut, 260; festival in spring, 263 et seq.; in autumn, 265.
Kumiss vessels, of Yakut, ancient specimens disappearing, 260; types of, 266; decorations on, 266 et seq.
Kwakiutl, story of the rival chiefs, text of, with interlinear version, 110–136.
Kymograph, 137, 138.

La Combe, Jesuit missionary, 93.
Laufer, B., The Bird-Chariot in China and Europe, 410–424.
Lautverschiebung, reasons of, 384, 385.
Lee, Miss May E., 142.
Legge, J., 413 note.
Lehal, game of, 347.
Lehmann, R., Poetik als Psychologie der Dichtkunst, 501–513.
Lehmann, W., 312 note.
Le Jeune, 163.
Lenz, O., 155.
Lessing, G. E., 509, 511.
Lessing, J., 417 note.
Letto-Lithuanians, 380, 383.
Li Lung-mien, 223.
Li-shī-lu, 223.
Liang-sü-kung-ki, 219, 229.
Liétard, 29, 36.
Lightning, personified in Chinese pictorial art as woman holding mirrors, 232.
Lipan, 39.
Livi, R., 29, 37, 60.
Loebèr, 442.
Lombroso, 60.
Lumholtz, C., The Meaning of the Head-Plume Tawia'kami used by the Huichol Indians, 316–319.
Lumholtz, C., 205, 206, 364.
Lun-höng, by Wang Chʻung, 240.
Lung Ta-yüan, Chinese art-historian, 415.

Ma Chī-ki, poet, 243.
Macalister, 44.
Magic mirrors, 243–247.
Magnifying mirrors, 225–226.
Magpies, Chinese legend of, 233; as ornament on mirrors, 233.
Maidu, pronouns in, 81.
Maitre, Cl. E., 431 note.
Maize, northern boundary of ancestral forms of, 196.
Malacca, spectacles brought to China from, 216.
Maluksilaq, Eskimo of, 499.
Man, growth before birth, 16; conception as starting-point, 17.
Man, type of young Indian, 40–41.
Mangu Chan, 146.
Mannhardt, W., on tree worship, 388.
Marble Island, in Hudson Bay, 499, 500.
Marquardt, I., 220, 224.
Martin, R., 32, 37.
Martius, 207.
Mask, of negro, in Kekchi pantomime, 286; mask representing ox-head, 286.
Masson, Ch., 151.
Matthews, 177.
Maya, pronoun in, 85 et seq.; of Yucatan, 389.
Mead, C. W., The Six-unit Design in Ancient Peruvian Cloth, 193–195.
Ménard, 20, 26.
Mendoza Codex, 290, 291.
Mexican, precious curiosities of the sixteenth century, 306–315.
Mexicans, astronomical methods of, 290 et seq.
Mexico, calabash-vessels of, 205–206.
Michel, F., 160.
Middendorff, 265 note.
Middle-sized men, 27; in Europe, 28.

Milchner, 247.

Milieu, influences of, on body-height, 35.

Milk, cow's and mare's, among Yakut, 259. See also Kumiss.

Milky Way, among Cherokee, 363, 364, 365.

Minot, C. S., 17, 18, 19, 26.

Mirrors, Chinese Metallic, 208 et seq.; birds dancing and singing before, 233; breaking of, a bad omen, 232–233; convex and concave, 223; death, staved off by use of, 231; death, foretold by, 233; evil influences warded off by, 229–230; fever cured by, 231; girdles ornamented with, 215; glass, 219; grape, 236, 237, 238; grinding concave and convex surfaces of, a lost art in eleventh century A.D., 224–225; having handles, 223; Hien-yüan, 230; illumination by means of, 228, 231; inlaid work on, 218; iron, 219; jade, 216; light increased by use of, 228; materials of, 216; medical effects ascribed to, 230–232; moon, water extracted from, by means of, 227; moulds for casting, 218; ornaments on, in concentric sections, 238; pheasants dancing before, 233; poison rendered harmless by use of, 239; polish of, 218; prophetic powers of, 233; reflection of light and sound by, 228; repolishing of old, 245–246; ritual use of, 226; Roman and Greek, 220, 223, 224; Röntgen-ray effects obtained by, 231; Scythian, 222–223; Seneca mentioning large, 224; Shang dynasty may not have known metallic, 213; Shang-fang factories, 234; shape of, 223; silver, 218; size of, 224; spirits, evil, rendered visible by use of, 229–231; square, 223; stone, 217; superstititions regarding, 229–233; Syrian, brought to China, 220; T'ang kui root with powdered mirror metal enters into medical prescriptions, 232; Tauism, furthering superstitions about, 229.

Mishima, Dr., study of Japanese children, 15, 26.

Mohave, 39.

Möllendorff, O. F., 413 note.

Montezuma the Younger, 291.

Mooney, J., 167, 354, 355, 356, 359, 364, 365, 389.

Moose, gradually spreading south in British Columbia, 343.

Morgan, Lewis H., 167, 168, 169, 170, 172.

Morice, A. G., 173, 340, 343, 346.

Morocco, Jews of, 61.

Morse, Edward S., 410, 421.

Motolinia, 298.

Much, M., 377, 381.

Müller, F. W. K., 247.

Müller, Sal., 442.

Munzinger, 387.

Murdoch, 163.

Murie, J. R., 350.

Muroaka, 212.

Musk-ox, 498.

Mustache, of Bosnian hero, 395.

Mustajbeg, 400.

Mutch, Capt. J. S., Whaling in Ponds Bay, 485–500.

Nan-chi, Chinese god of longevity, 1.

Navaho, manly beauty among, 39, 41.

Navy Board Inlet, chart of, drawn by Eskimo, 497; caribou-hunting on, 498.

Nebel, C., 301.

Negrito skulls, 35.

Nery, 356.

Netchillik, big human-like footprint in, 498; remains of members of Sir John Franklin's expedition near, 499, 500; tribe, 479.

Newell, W. W., Note on the Interpretation of European Song-Games, 404–409.

Nicaragua, use of calabash in, 201.

Nieremberg, Father, 273.

Nipple ornament, Chinese, 245, 250–252; on bells and libation-vessels, 251; symbol of nutrition, 251.

Niska, tribe, 339.

Nuttall, Mrs. Z. The Astronomical Methods of the Ancient Mexicans, 290–298.

Œdipus, 156.
Omaha, 389.
Orc, in religion of Ainu and Gilyak, 426.
Ordeal, Bosnian, 402.
Ornaments, engraved, among North Americans, 181; Chinese views regarding, 238–239; on Yakut kumiss-vessels, 266–271; connection of "nail" and "finger" patterns on wooden vessels and embroidery, with pottery-work, among Yakut, 270; Russian, among Yakut, 270–271.
Ornaments on Chinese mirrors, bear or lion as knob, 237, 238; Buddha figures, 247, 249; chariots and horses, 249; chrysanthemum, 238; concentric sections, 238, 250; cyclical characters, 239, 243; deer or k'i-lin, 248; dragon, 241; fluted pattern on libation-vessel, 251; fungus or clouds, 241; grapes, vine leaves and tendrils, 236; human figure, 248; nipples, 250–252; nipples indicating horary characters, 245; pa-kua figures, 240; padma throne, 249; rosettes with mammiform centres, 250; star with sixteen points, 250; the four animals, 240; the twelve animals, 239–240; t'o-lung dragon-monster, 248–250; water pattern, 241; water-chestnut blossoms, 238, 245, 246.
Ostrich, American, 273; feathers among Aymará, 273.

Paléologue, 212.
Palladius, 413 note.
Pallas, P. S., 147.
Palmas, 300, 302, 304–305.
Pantomimes, Chinese, handled mirrors used in, 223.
Pantukhof, 63.
Papago, 39.
Parnell, J., 212.
Pau-p'o-tzĭ, 229.
Pawnee, ritual of instruction, 350–353.
Payne, E. J., 200.
P'ei-wön-yün-fu, 2 note, 211, 245, 421.
Pelops and Demeter, 156.
Pembrokeshire, shoulderblade-divination in, 161.
Pepper, G. H., Human Effigy Vases from Chaco Cañon, New Mexico, 320–334.
Perry, J., 212.
Peru, calabash-vessels in, 207; pygmies of, 32.
Peruvian textiles, six-unit design in, 193–195.
Pervanoglu, 157, 158.
Petrie Flinders, 410.
Philemon, J., 157.
Philippines, Negrito of, 35.
Picture-writing, of Tahltan, 347.
Pien-tzĭ-leĭ-pien, 211.
Pleiades, legends regarding, 358–361.
Pliny, 156; on mirrors, 220.
Po-ku-t'u-lu, 208, 412.
Po-wu-yau-lan, on Süan-tö bronzes, 219.
Poetry, psychology of, 503 et seq.
Polevik, 389.
Politis, 156, 157.
Pön-ts'au-kang-mu, 210, 232.
Ponds Bay, 487; Eskimo of, 488 et seq. See also Eskimo.
Ponka, 389.
Popol Vuh, 200, 357.
Potanin, 149.
Pottery, among North American Indians, 181, 182; of Alaska, resemblance of, to that of Siberia, 369; ornaments on Yakut, 270.
Prince of Wales Land, 498.
Proverbs, Bosnian, 399.
Prshewalski, N., 145, 146.
Psellos, Michael, 156.
Puberty and prepubertal acceleration, 21.
Pueblo, 39.
Putnam, F. W., 320, 332.
Pygmies, 31; of Africa, 32.

QUATREFAGES, DE, 375.
QUILL-WORK, of Casca, 341.

RABBIT, the Great, among Cherokee, 361–362.
RANKE, Johannes, Zur Frage der Gehirnuntersuchung bei ärztlichen Sectionen, 443–446.
RAT, female, details of the more rapid growth of, 23. See WHITE RAT.
RATZEL, 379.
RAVEN, as prophet of ill luck, 398, 403.
REALISTIC ART, unknown to ancient Yakut, 269.
REED, W. A., 37.
REINACH, S., 422.
REINDEER, 382.
REINECKE, P., 222.
RETZIUS, 30, 37.
RHAPSODISTS, Bosnian and Hellenic, 400.
RICHARD, Ernst, The Scandinavian Theory of Indo-European Origins, 373–386.
RICHTER, C., 438, 439, 440, 441, 442.
RINK, 356.
RIPLEY, W. Z., 36, 375, 377, 378, 382.
ROBERTS, C., 14, 15, 26.
ROMAN DANCES, 407, 409.
ROUSSELOT, 138.
RUBRUQUIS, 146, 147.

SAHAGUN, 206, 297.
SALINAN, stock of languages in California, 84.
SALMON, drying and smoking of, by Tahltan, 344.
SALMON-SPEAR, of Tahltan, 344.
SALVADOR, use of calabash in, 202.
SAN-KUO-CHÏ, 221.
SAN-TS'AI-T'U-HUI, 210, 412 note.
SANSKRIT, linguistic position of, 378.
SAPIR, E., 108 note.
SAPPER, K., Spiele der Kekchi-Indianer, 283–289.
SARASIN, P. and F., 37, 438, 439, 441, 442.
SÄROSHEVSKI, 265 note, 269.
SAUK, 88.
SCANDINAVIAN home of Germanic tribes, 383.
SCANDINAVIAN THEORY of Indo-European Origins, 373 et seq.
SCAPULIMANTIA, 143 et seq.; among Mongols, 145; among Kalmuk, 147–149; among Kirghis, 149; among Buriat, 150; among Hazarah, 150; among Chukchi and Koryak, 151; among Sindhi and Baluchi, 152; among Cherkessians, 154; among Arabs, 155; unknown to Hebrews, Greeks, and Romans, 156; among Byzantins, 156; among Greeks, 157–158; among Rumanians, 158; among Bosnians and Serbians, 159; in Corsica, 159; in Germany, France, Spain and Lithuania, 160; in England, 161; in Scotland, 162; in America, 163; in Japan and Tibet, 165; historical and geographical extent of, 163–164.
SCHADENBERG, 35 note.
SCHERER, 503.
SCHILLER, 510.
SCHIMMER, 56.
SCHMELTZ, J. D. E., Ein Beitrag zum Kapitel Arbeit und Rhythmus, 438–442.
SCHMIDT, E., 31.
SCHMIDT, Joh., "Wellentheorie," 373, 378.
SCHOOLCRAFT, 360.
SCHOTT, W., 154.
SCHRADER, O., 376, 380, 422.
SCHWALBE, G., 31, 34, 37, 47.
SCULPTURE, among North Americans, 180.
SCYTHIANS, invasions of, 156.
SELDEN CODEX, 293, 296.
SELER, E., Eine Steinfigur aus der Sierra von Zacatlan, 299–305.
SEMANG, 32.
SENOI, 32.
SHADOW-PLAY, Chinese, text and translation of, 1–4.
SHAMANS, of Yakut, 269.

SHEEP, in Eastern Asia, 145.

SHĪ-HUANG-TI, the Emperor, 237; had a mirror for lighting up human body, 231, 232.

SHĪ-I-KI, 228.

SHĪ-KING, 214.

SHIELD, turquoise, of Ambras Collection, 307.

SHÖN-I-KING, 233.

SHÖN KUA, 224, 225, 243, 244.

SHU-KING, 215.

SHUFELDT, R. W., 39 note.

SI-KING-TSA-KI, 219.

SI-TS'ING-KU-KIEN, 209.

SICURI, dance of Aymará, 274 et seq.

SIDON, manufacture of glass mirrors at, 220.

SIE FÖNG, poet, 245.

SIRIUS, among Cherokee, 362, 363.

SKIN BAGS, of Yakut, for transportation of kumiss, 261.

SKIN-DRESSING, of Tahltan, 341.

SLAVIC collection of song-games, 407.

SMET, DE, 94, 95, 96.

SMITH, Elliott, 32 note, 37.

SMITH, Erminnie, 359.

SMITH, H. I., A Vast Neglected Field for Archæological Research, 367–372.

SNOW-SHOES, among Tahltan, 346.

SOCIAL ORGANIZATION, theory of, 166 et seq.; of the Tahltan, 348–349.

SOLSTICES, knowledge of, among ancient Mexicans, 298.

SONG-GAMES, European, 404 et seq.; Asiatic collections of, wanting, 407.

SONGS, of Salish Indians, 447 et seq.; notation of, 455 et seq.

SOUTH KENSINGTON MUSEUM, 411.

SOUTHAMPTON ISLAND, customs found on, 484; Eskimo reports on people of, 499.

SOWING-STICKS, from Borneo and Celebes, 438 et seq.

SPEAL-BONE, reading the, 161.

SPECTACLES, oldest mention of, in Chinese books, 216.

SPIX, 207.

SPOONS, of horn, among Tahltan, 342.

SSĪ-MA TS'IEN, 240.

SSĪ-SHÖN, or SSĪ-LING, 240.

STAR-LORE, of Cherokee, 354 et seq.

STERNBERG, L., The Inau Cult of the Ainu, 425–437.

STEVENSON, Mrs. M. C., 321.

STICK-GAME, of Tahltan, 347.

STIKINE, tribe of Tlingit, 338.

STOLL, O., 204, 284 note, 285 note.

STONE FIGURE, from Sierra of Zacatlan, 299 et seq.

STONE YOKES, of Zacatlan, 300.

STREBEL, H., 299, 300, 301, 302, 303, 305.

SÜ HÜAN, 225.

SU TUNG-PO, 226.

SÜAN-TÖ BRONZES, 218; superiority of the metal of, due to a conflagration, is a myth, 219.

SUN-GOD, of Japanese and Ainu, 427.

SUN LEGENDS, 355–356.

SWANTON, J. R., A Reconstruction of the Theory of Social Organization, 166–178.

SWORD-BLADES, Chinese, alloys for, 218.

TAHLTAN, 337 et seq.; habitat, 337–338; villages, 339–340; intermarriage among, 340–341; industries, 341; habitations, 341–342; dress, 342; food-supply, 342–343; fishing of, 344–345; transportation and travel, 345–346; war, 347; games, 347; picture-writing, 347-348; burial-customs, 348; social organization, 348–349.

T'AI-P'ING-YÜ-LAN, 210.

TALL MEN, 27, 30; in Europe, 28; among blonds, 30; among brunettes, 31.

TAN-YANG COPPER, 218.

T'ANG DYNASTY, arabesque element prevails under, 238; imitation of Han patterns during, 237; silver, in mirror alloy during, 218.

TATTOOING, of Tahltan, 342.

T'AU HUNG-KING, alchemist, 230.

TEIT, James, Notes on the Tahltan Indians of British Columbia, 337–349.

TEIT, 356.

WHITE RAT, comparison between man and, in respect to growth of entire body, 5 et seq.; in relation to black rat, 5; old age of, 6; span of life of, 6; growth of, during first fourteen days, 6; sexual maturity of, 7; method of weighing, 8; body weight of, 8; effect of mating, 8; cycle of disturbance in weight of, due to young, 9; growth of, before birth, 10; fœtal growth of, feeble, 17; two phases of fœtal growth of, 18.
WILLOUGHBY, Ch. C., 205.
WILSER, Ludwig, 376.
WINE, among Slavic Moslems, 401.
WINGED ARMOR, 401.
WINGED STEEDS, in myths of Yakut, 262.
WINGED TREE-SPIRITS, 401.
WINTUN, pronouns in, 81.
WISSLER, C., A Psycho-Physical Element in Primitive Art, 189–192.
WISSLER, C., 37.
WOLTMANN, 385.
WOMAN, type of beautiful Indian, 40.
WOOD, 44.
WORK AND RHYTHM, 441–442.
WREDE, V., 155.
WU-LI-SIAU-SHĪ, 210.
WU-TI, the Emperor, 223, 224, 229, 237.
WU TING, artist, 209.
WU TZĪ-HANG, 244.
WU-WANG, 214, 234.
WUNDT, W., 384, 385.

YAKUT, collection from, in American Museum of Natural History, 257; Turkish tribe of horsemen, 258; migrations, 258; economy of the horse and cattle, 259; their agriculture, 259; wheeled bird as toy among, 410, 423.
YIN CHUNG-WÖN, death of, foretold by his mirror, 233.
YOKUTS, vocalic harmony in, 67.
YOKUTS AND YUKI languages, territory of, 65; different origin of, 65; phonetic systems of, 65; stems of, 67; derivation in, 68; structure of words in, 68; composition of, 68; reduplication in, 69; onomatopoetic stems, 69; borrowing of words in, 69; grammatical structure of, 69; suffixes expressing number and gender in, 69, plural in, 69; case-suffixes in, 70; formative suffixes of verbs in, 70.
YÜ LOU, palace of goddess Hsi wang mu, 1.
YÜ-T'UNG-SÜ-LU, 244.
YÜAN-KIEN-LEĪ-HAN, 210.
YÜAN YÜAN, 242.
YUMA, 39.

ZIMMERMANN, H., 308, 311, 312.
ZINGERLE, J. V., 160.
ZOGRAFF, 36.

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